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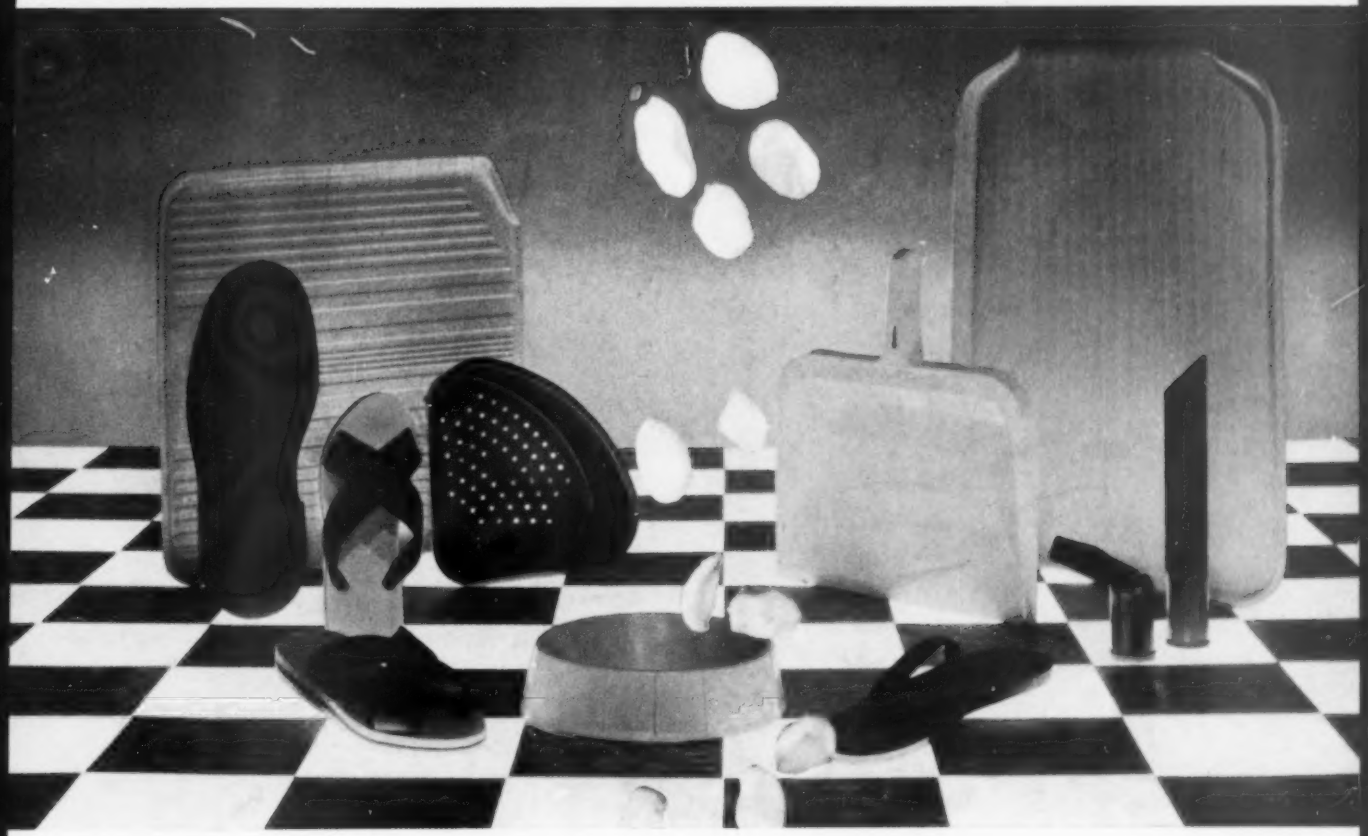
VOLUME 140 NO. 2 JANUARY 14 1961



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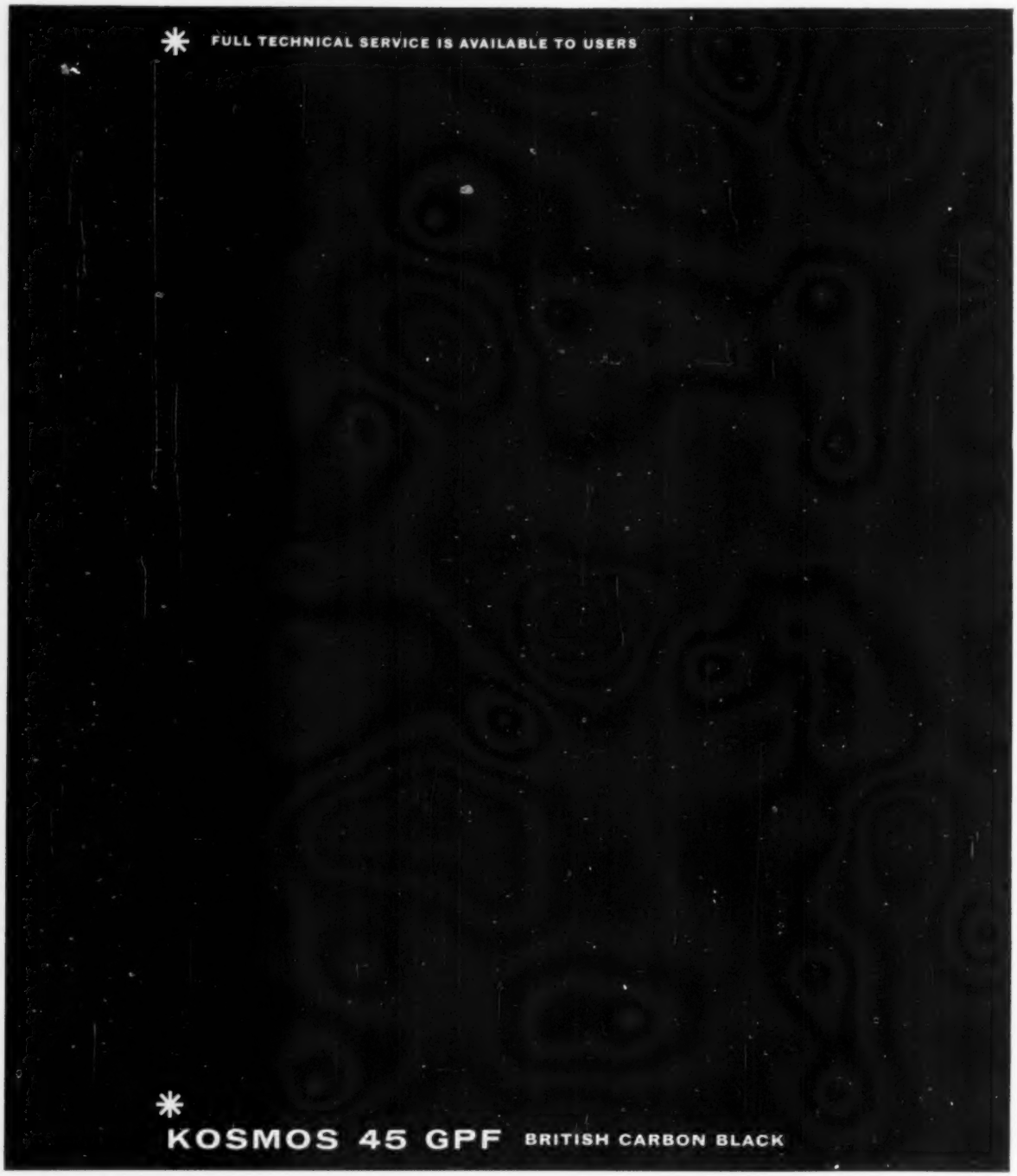

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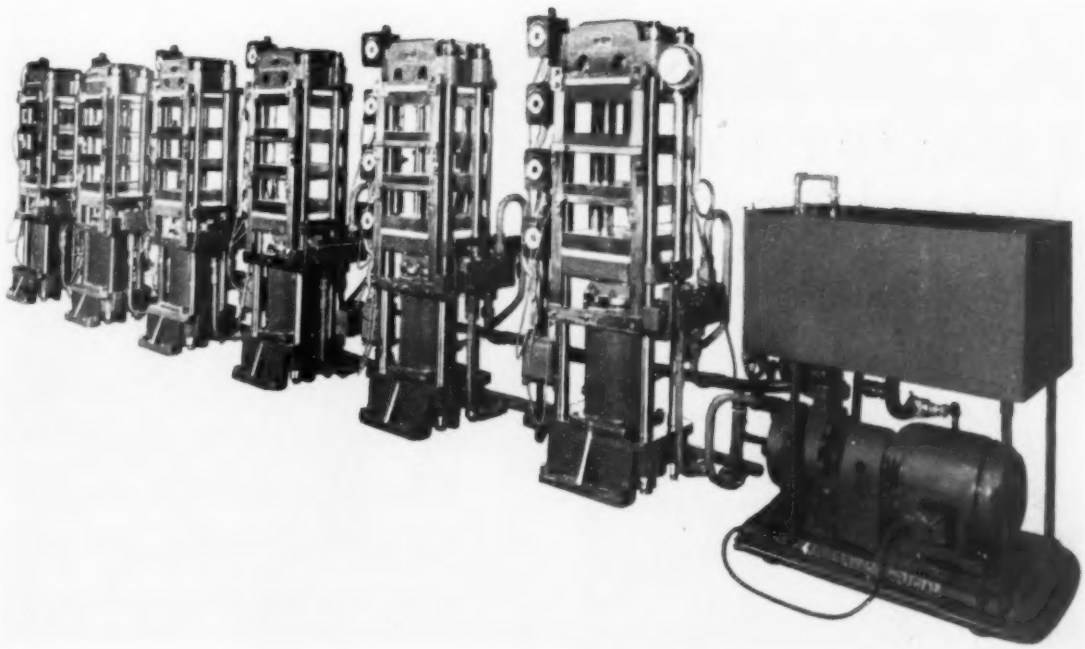

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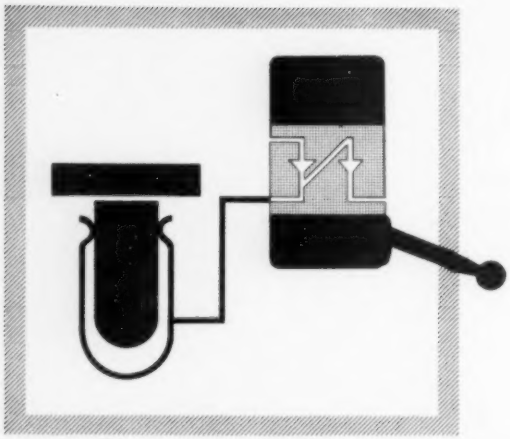

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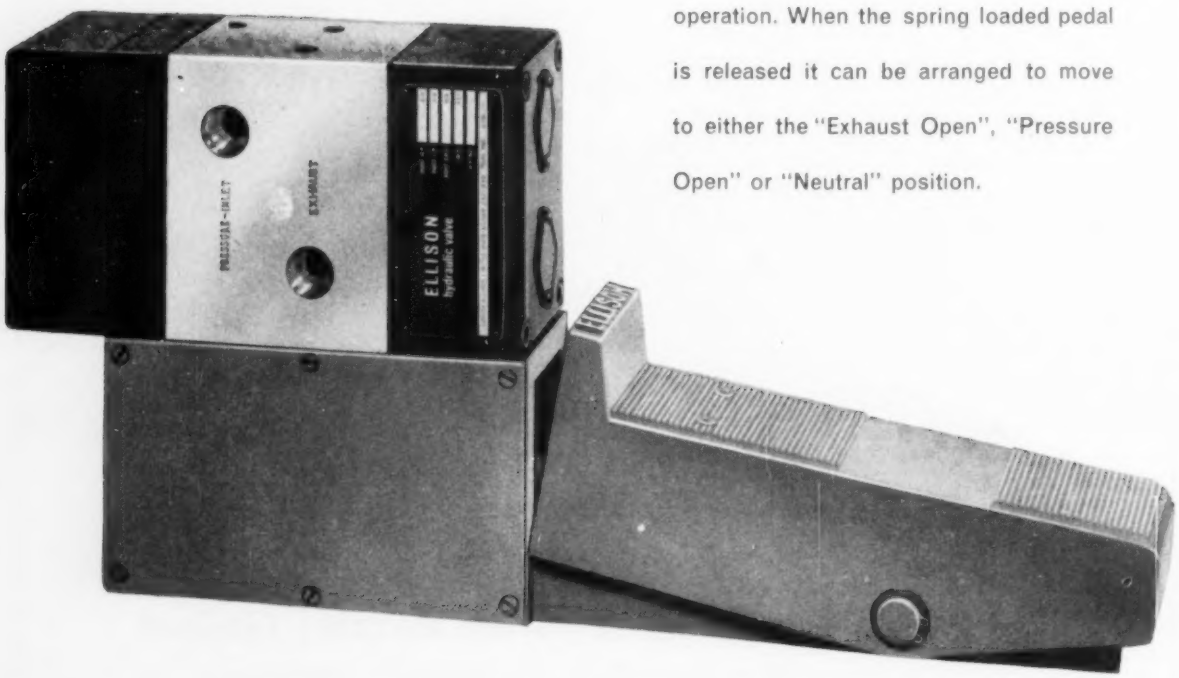

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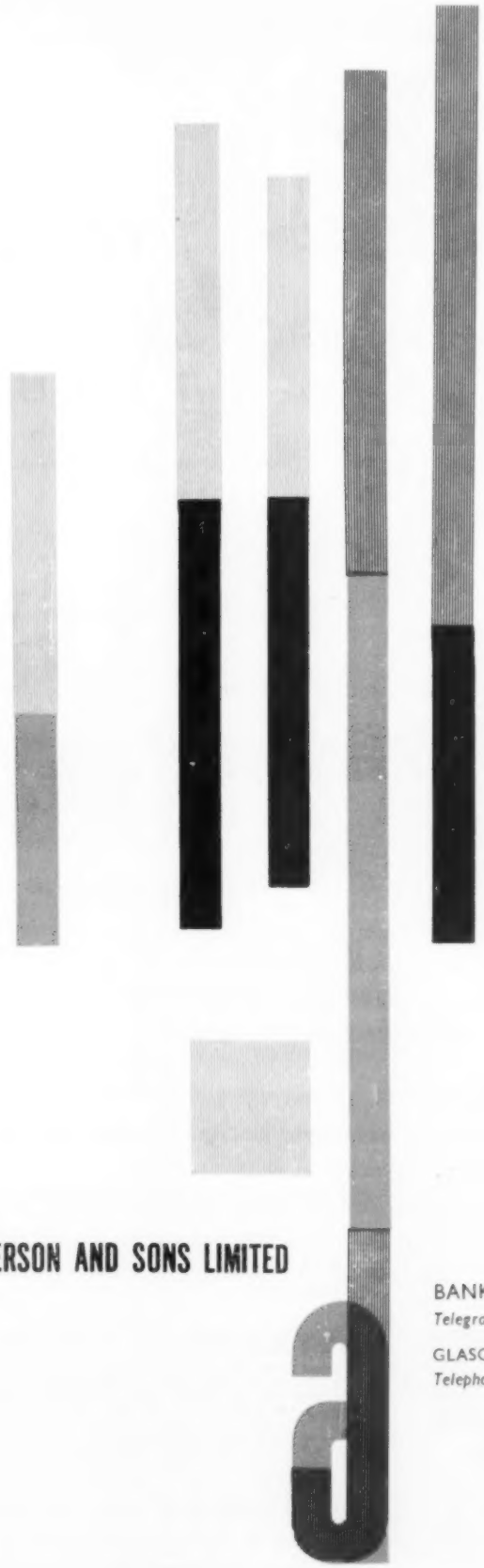

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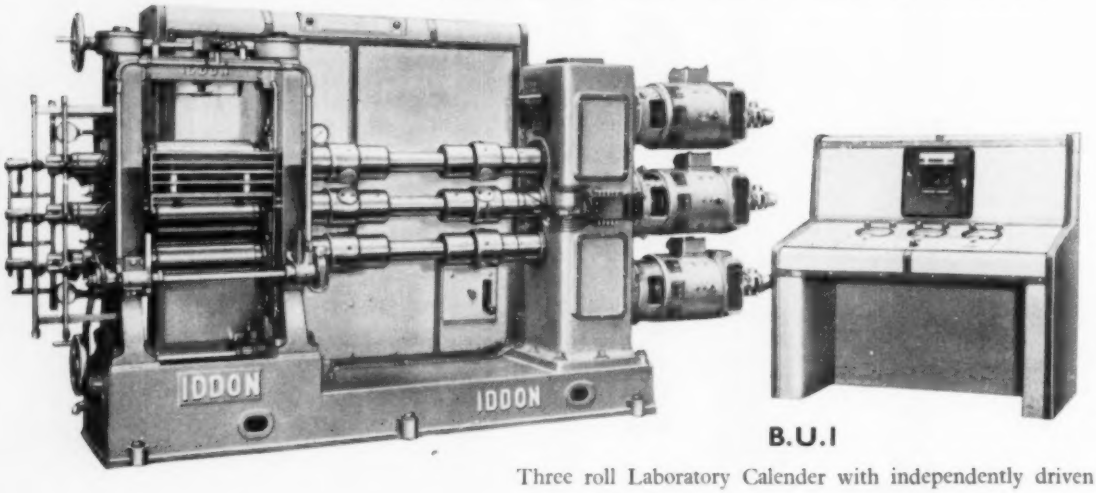

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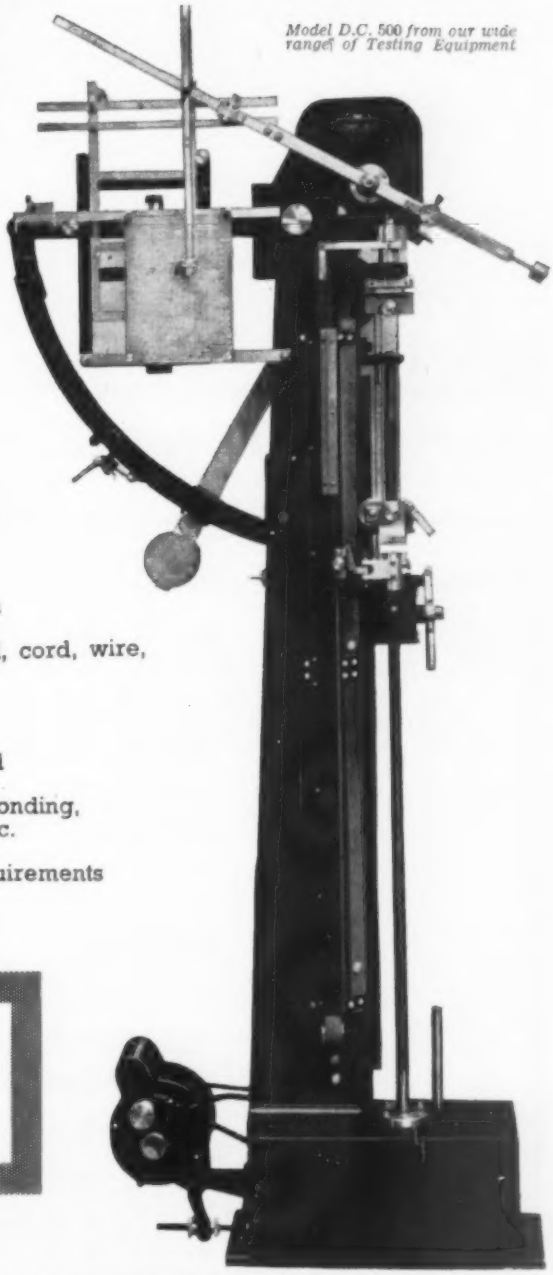

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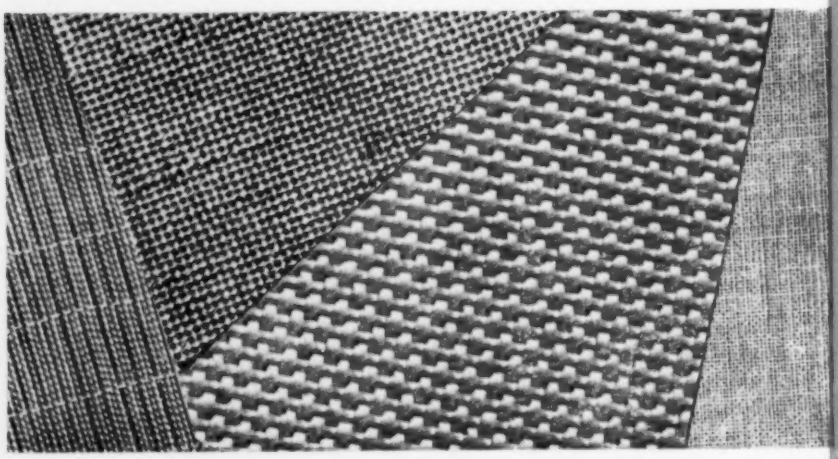

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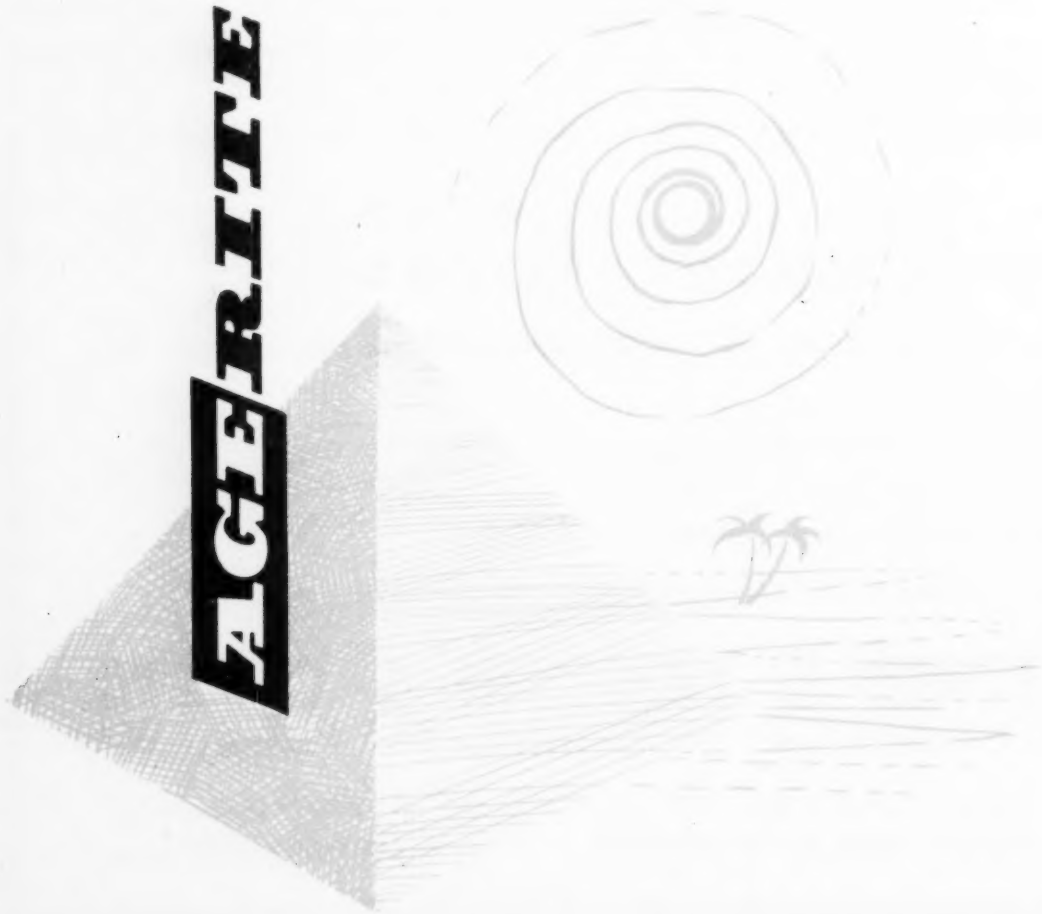

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RUBBER JOURNAL AND INTERNATIONAL PLASTICS

One shilling — WEEKLY

Volume 140 — IN ITS 77th YEAR — No. 2

January 14 1961

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NOTES of the WEEK

Clearing the Ground

LAST week on this page we wrote about the shortage of technicians in industry. The White Paper on technical education to which we referred has now been published. It contains no surprises for either the educationalist or the industrialist and, in general, has had a reception about as mild as its proposals. But, if there is nothing very startling about it, it is a very necessary clearing of the ground for the more sweeping changes which must eventually come.

What consequences has the White Paper for the employer in the rubber and plastics industry? The proposals seek to reorganise the present system and put it on a more logical basis: an attempt has been made to adapt it more closely to the needs of industry. They give a clearer definition of what a technician should be and how he should be trained. In the present muddle 'technician' may mean anyone, from a person with no training at all to a failed technologist. There is more emphasis on choosing a particular technical training course for a man, rather than a man for the course, and there will be more courses to choose from. There will be a smooth transition from school to technical college, instead of the annoying gap that occurs at present when a child leaves school at 15 and cannot start at a technical college until he is 16.

Other proposals are that: more time should be provided under day release schemes (although nothing is laid down about this and there is no mention of compulsory day release); sandwich and block release courses should be extended; courses for operatives should be developed; Ordinary National Certificate courses will last two instead of three years and the entry standard will be raised; there will be new courses of four or five years specially for technicians; and new general courses will be introduced, leading to either technician courses or Ordinary National Certificate and Diploma courses.

Preventing Waste

ONE of the objects of this reshuffle of courses is the prevention of waste. In the present system far too many students fail to complete their courses, and, although it has been pointed out in the Crowther Report that it must not be assumed that all students who do not gain a qualification get no benefit from their further education, the feeling of not being quite up to it has a bad effect on the young worker. Some wastage is inevitable, but the implementation of the White Paper proposals should reduce it to a reasonable level. The proposals in this case include a wider range of courses, more time for students to cover the necessary ground and better selection procedures. Certainly, one of the chief merits of this White Paper is that, without lowering the existing standards, it should help more students to succeed.

Mental Flexibility

ONLY about 34% of boys and 7% of girls leaving school enter apprenticeships or learnerships in skilled occupations. Most of the rest go into jobs with no prospect of day release. But some of these jobs, particularly in a highly mechanized industry like the polymer industry, require a good deal of skill. This is a field in which much educational work could be done, and the proposal to run courses for operatives should be welcomed by all in industry. Quite apart from training in one particular job or skill, training in adaptability is required. As the Industrial Training Council pointed out in its recent report, in modern industrial conditions transfer from one job to another is likely to become more and more common, and the workpeople 'will require a mental flexibility which can only be developed by further education after the end of full-time schooling.'

A Broader Base

THIS 'mental flexibility' must, of course, extend through the whole of the technical training spectrum, from operative to technologist. The White Paper recognizes this and indicates that courses in technical colleges should become more general; more mathematics, more scientific principles. This means that industry will be required to release young workers for longer periods. There may be some grumbles at this, but enlightened firms will see the long-term advantages of a broader-based education. And firms should not stop at merely releasing their workers. Technical colleges exist (or should exist) to serve industry—they are, in fact, part of industry—and they can only do their job properly when industry defines precisely what it wants.

'Our natural resources are limited, and in an increasingly competitive world our future as an industrial nation will largely depend upon our success in developing the native skills of our young people,' states the White Paper. And our success in developing them will, we think, largely depend on the fullest possible co-operation between industry and technical education.

NEWS *Briefs*

MONSANTO HYDROCARBON PLANT — NEW TYRE CORD—BIG TYRES IN TURKEY—SWEDEN ORDERS EXTRUDERS — MORE RUBBER IN SOUTH VIETNAM

●**United States** — The General Services Administration sold only 112 tons of natural rubber from the national stockpile in December. This was because GSA cannot sell rubber when the market price is below 30 cents per lb., as it was during most of the month. The total sold under the current disposal programme has now reached 97,871 tons.

●**Switzerland** — Michelin has set up a holding company in Zurich — called Companie Financiere Michelin — with an ordinary capital of 300m. Swiss francs. It has been established to take care of the parent company's more important commercial and financial undertakings outside France, and to co-ordinate and finance them.

●**Israel** — Latex products will be manufactured at Caesarea by a subsidiary of the Alliance Rubber and Tyre Co., called Caesarea Polymer Corp., according to the Israel Government Investment Authority. Technical aid for the new plant will be provided by the American Latex Corp., of Hawthorne, California, a subsidiary of Dayco Rubber, which helped in the establishment of the Alliance Co. at Hadera. Under a five-year contract, the Latex Corporation will receive 5% of the factory's net income from sales in exchange for its services. The new plant will start producing foam rubber products and printing rollers for the domestic market. Annual output is expected to be valued at I£500,000.

●**Sweden** — A Swedish firm has placed an order with Fawcett Preston and Co., a member of the Metal Industries group, for three 2½in. extruders. Other orders received recently by Fawcett Preston also include one for a 1½in. thermatic extruder from Australia, and one for a two-roll mill from Denmark. These recent export orders add up to £75,000.

●**United States** — The introduction of a new 'significantly stronger' Tyrex rayon tyre cord was reported by the Industrial Rayon Corporation. The company said the new cord was the result of more than two years of research and added that 'there is sound basis for the expectation that even more improved Tyrex tyre cord products will be developed in the near future.' The new cord was said to be particularly well suited for heavy-duty tyres. It was claimed to be 10% stronger than the present cord. Commercial production will be started early this year. The cord will be offered at regular prices and will be available in all deniers for use in passenger car as well as heavy duty truck and bus tyres.

●**United Kingdom** — Strikers at the North Shields factory of Commercial Plastics went back to normal working last week. Talks are being held between union and management officials.

●**United States** — In a move towards self-sufficiency in hydrocarbon raw materials for its chemical processes, Monsanto Chemical Co. will construct a major plant on a 3,000-acre site it has purchased at Chocolate Bayou, Texas, Mr Sommer, president, announced. The cost was not given, but some quarters said it might run as high as $75m.

●**Italy** — About 2,000m. lire worth of damage was caused by a fire in Turin at the Ceat-Gomme Company's tyre factory. A spokesman said that no crude rubber was destroyed but the fire had 'devoured' finished tyres, a certain quantity of textile material for the manufacture of tyre covers, part of the machinery for the production of tyres and some of the brickwork of the factory's shell. The factory was expected to be back in total production by the end of January.

●**Turkey** — The US Rubber Co. has concluded an agreement with Turkey for the erection of a plant for lorry and tractor tyres which will cover about 25% of Turkey's requirements. The construction of the tyre factory which Pirelli is building near Istanbul is said to be going well and it is expected that production will start next year.

●**South Vietnam** — Rubber plantations in South Vietnam were extended last year by 2,500 hectares to over 100,000 hectares. The South Vietnamese Government invested 150m. piastres in 1960 to develop the cultivation of Hevea rubber trees.

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Another Polythene Expansion

MONSANTO TO ADD 50% TO PRESENT FAWLEY CAPACITY

A FURTHER expansion of polythene production facilities at the Fawley, Southampton, factory of Monsanto Chemicals Ltd. has been announced. The company says that the first stage will be fully operational early in 1963 and will add approximately 50% to present capacity, which is said to be in 'excess of 17,000 tons a year.' The layout of the plant will facilitate the addition of further units as the market develops.

This is the second expansion of the Fawley plant, which was commissioned in the spring of 1959 with an original capacity of 10,000 tons a year. Using the high pressure process, it makes a broad range of polythenes for industrial and domestic uses.

UK Polyolefin Capacity

The present UK polyolefin capacity is about 150,000 tons; by the end of next year it should be approaching 200,000 tons. I.C.I. accounts for more than half of this: its capacity for polythene and polypropylene is 115,000 tons. Shell's capacity when the Carrington plant comes on stream at the end of 1961 will be 30,000 tons. Union Carbide's present capacity at Grangemouth is said to be 10,000 tons plus, while Distillers are producing 12,000 tons of high-density polythene.

English Electric Forms Plastics Division

The English Electric Co. has formed a reinforced plastics division. The reinforced plastics work of the group will be centred at the new works at Freckleton, Warton.

The Freckleton works will be mechanized as far as possible, and although initially the bulk of the products will be used within the group, the factory has been organized for competitive production.

Pressure mouldings up to a size of 15ft. by 12ft. can be made at these works, and filament-wound tubes, pipes and pressure vessels. Preforming and press moulding will be carried out by a separate manufacturing unit.

Mr Charles Hayes, who joined English Electric in 1958, will be manager of the division.

New Curing Agent from Shell

Shell Chemical Co. Ltd. has added two new products, Epikure RTH and Accelerator RTA, to its range of curing agents for liquid Epikote resins, which are used in the engineering and electrical industries.

Epikure RTH is a low viscosity, room temperature curing agent, which has been developed for use with Epikote 828 and Epikote 815. It may be used with varying proportions of Accelerator RTA for the production of both castings and glass fibre reinforced laminates, which are said to have excellent mechanical and chemical resistant properties.

Huls and Eastman Joint Venture

A joint enterprise called Faserwerke Hüls GmbH has been established by Chemische Werke Hüls AG and the US company Tennessee Eastman. It will produce and sell a polyester fibre in the European textile market. Tennessee Eastman is a division of Eastman Kodak of New York.

The fibre will eventually be produced in a new factory that Faserwerke now has under construction at Marl, in the Ruhr. Hüls says that, although considerable time will be required for completion of the new factory, Faserwerke will commence importation immediately of fibre from America.

One report puts the capital of the new company at DM34m. (£2.6m.).

Baker Perkins — Rose Bros. Merger

BAKER Perkins Ltd., of Peterborough, which has a strong interest in the wrapping and packaging machinery industry through its wholly-owned subsidiary, Forgrove Machinery Ltd., and Rose Bros. (Gainsborough) Ltd., designers and manufacturers of an extensive range of machines in this same field, have negotiated a plan for a merger.

Baker Perkins has signed an agreement with the owners of 53% of the issued capital of Rose Bros. (Gainsborough) Ltd. with provision for the offer to be extended to all other stockholders. Under the proposed new organization H. S. Ridley will continue as chairman of the company and all executive directors will continue in office. It is anticipated that A. I. Baker, chairman of Baker Perkins, together with N. Mountain and R. H. Wilkins, directors of Baker Perkins and W. A. B. Brown, deputy managing director of the Forgrove Machinery Co. Ltd., will join the board of Rose Bros. (Gainsborough) Ltd.

Rose Bros. have manufacturing facilities at Gainsborough, Leeds, Saxilby and Skegness and have been specialists in the wrapping and packaging machinery field since 1880. The Forgrove Machinery Co. Ltd. was established in 1901 and has two factories in Leeds and a third on the Team Valley Estate at Gateshead. The combined enterprise, it is said, will be the largest in the world devoting its attention to this particular industry.

Shell Reduces Prices of HD Polythene and Polypropylene

SHELL Chemical Co. has reduced the prices of high density polythene and polypropylene.

'Carlona' 900, a high melt index high density polythene, has been reduced from 2s. 8½d. to 2s. 6d. a lb. for minimum five ton lots and by 2d. a lb. for all other quantities. Prices of all other grades of high density polythene have been reduced by 1½d. and 1d. a lb. respectively.

'Carlona' polypropylene has been reduced from 3s. 4½d. to 3s. 1d. a lb. A ten ton lot price (representing a reduction of 4½d. a lb.) has been introduced. Ten ton lot prices are now 3s. for natural, and 3s. 6d. for standard colours or black.

In addition to making these price cuts, the company has introduced a low density polythene at 1s. 10d. a lb. (for ten ton lots) which will be imported from a joint Shell/BASF Co. in Germany until the 30,000 ton plant for high and low density polythenes and polypropylene comes into operation later this year.

Man-made Fibre Directors

The British Man-Made Fibres Federation has appointed two assistant directors — one for Manchester, the other for London.

The Manchester assistant director is Mr Bernard Clark, who joined the Federation's staff in 1946. The London assistant director is Mr Christopher Bellingham-Smith.

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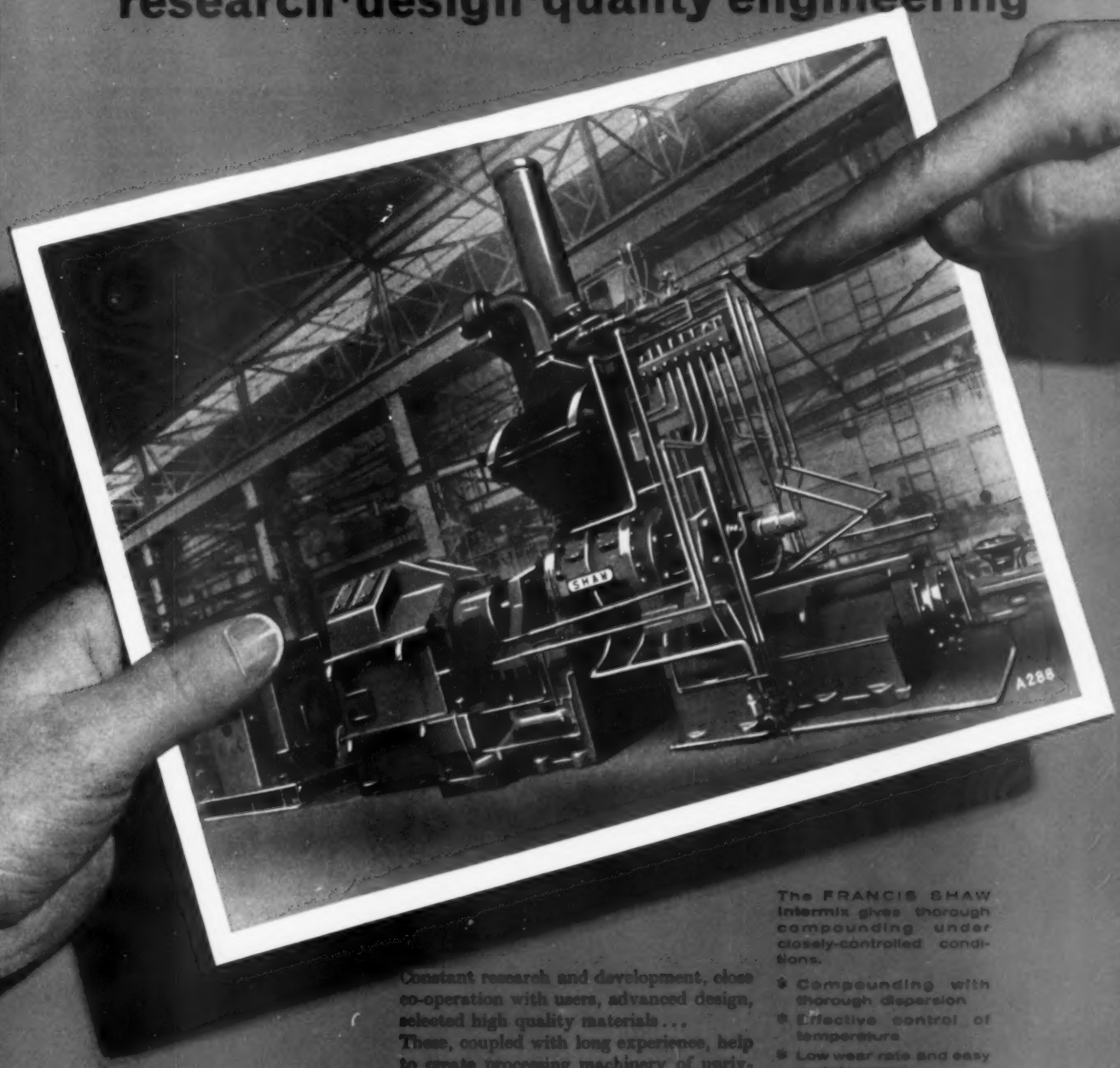

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OVERSEAS AGENTS THROUGHOUT THE WORLD

P4307

Natural Rubber Reorganization

CHANGES IN UK RESEARCH AND DEVELOPMENT UNITS

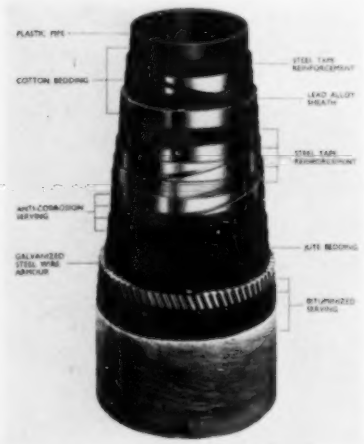
FURTHER changes have taken place as part of the programme of reorganization of the research and development units for natural rubber in the UK, under the control of the Malayan Rubber Fund Board.

As announced previously *(RJIP*, July 30, page 157), The British Rubber Producers' Research Association and The Natural Rubber Development Board have been renamed The Natural Rubber Producers' Research Association and The Natural Rubber Bureau respectively. The boards of these bodies have now been reconstituted so that they have a common membership, which is: chairman, Sir Geoffrey Clay (controller of rubber research, Malaya, and chairman, Malayan Rubber Fund Board); vice-chairman, E. Jago (London Representative, MRFB); Dr L. Bateman, director of research, NRPRA; H. B. Egmont Hake and E. D. Shearn, appointed by the minister of commerce and industry, Malaya, on the recommendation of the MRFB, which is the final authority under the minister of commerce and industry for the definition of policy, programming and finance of the various bodies financed from Malaya.

The Boards in the UK are concerned with general financial, legal and business matters. As previously announced, recommendations on research policy and associated activities are submitted to the MRFB by a co-ordinating advisory committee, normally meeting in London and composed of eminent representatives of the scientific, industrial, and commercial sides of the rubber industry. Sir Geoffrey Clay is chairman and Sir Harry Melville, vice-chairman of this committee.

Technical Development Absorbed

Rubber Technical Developments, a joint unit of the NRPRA and the NRB, has ceased independent operations. Its staff has been absorbed by the NRPRA and its premises have become the technical service and development laboratories of the NRPRA. Because of these changes, there has been a redispositioning of staff at the NRPRA. Dr L. Mullins, formerly head of the physics and technology groups, is promoted to deputy director of research. The main section heads are now Dr G. F. Bloomfield (technical service and international liaison), S. C. Stokes (service technology and development), Dr C. G. Moore (research technology), Dr J. I. Cunneen (general chemistry), Dr E. G. Cockbain (biochemistry, polymer chemistry and latex research), Dr A. Schalamach (fundamental physics) and A. G. Thomas (applied physics). Dr D. Barnard has special responsibilities in fundamental chemical research, especially biochemistry.



As reported in last week's issue, British Insulated Callender's Cables has received a Canadian contract worth $7m. for manufacturing and installing what will be the world's longest flexible gas pipeline. It will carry natural gas from the mainland of British Columbia to Vancouver Island. The composition of the pipe to be used is shown here: the plastic pipe is made of high impact pvc

I.C.I. Sells Plastics Know-how

AMERICAN CYANAMID TO MANUFACTURE ACRYLATE

IMPERIAL Chemical Industries Ltd. has signed an agreement with American Cyanamid Co., giving the latter manufacturing rights in USA for I.C.I.'s know-how on methyl methacrylate.

American Cyanamid's entry into the methyl methacrylate market is a logical expansion of its activities in the plastics field, says I.C.I. Cyanamid is a leading producer of melamine and urea thermosetting resins. As producers of acrylonitrile they manufacture hydrocyanic acid, a principal raw material in methyl methacrylate production.

Monomer and Cast Sheet

The agreement covers know-how in the fields of monomer, cast sheet, moulding materials, and methods of converting these products into finished articles. I.C.I. has marketed methyl methacrylate sheet throughout the world under its trade name Perspex for many years. It is widely used for advertising signs, lighting fittings, and roof lights.

I.C.I.'s moulding material, under the trade name 'Diakon,' is used in the manufacture of motor car rear lights, telephones, and many components of the radio and television industries, including implosion guards.

Control of Dunlop Latex Plant Alters

Dunlop Chemical Products Division has taken over complete control of production and sales of the Dunlop synthetic latex plant at Erdington, Birmingham. Dunlop says that the move has been taken to meet growing demand for synthetic latices by the paper, paint and textile industries, and for adhesives by industry generally.

The plant was previously operated by the Central Research Division, although sales were the responsibility of Chemical Products.

Anchor Reorganize Plastics Division

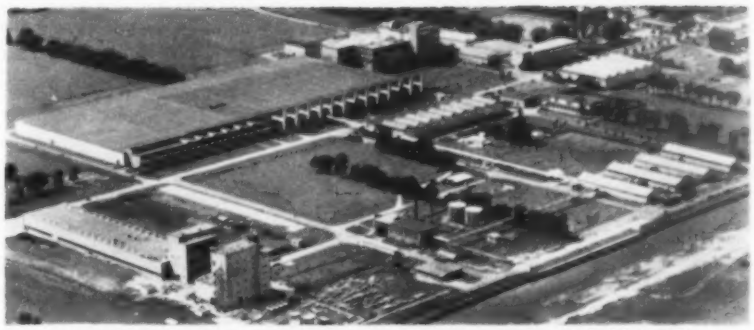
Anchor Chemical has reorganized its plastics division for both UK and overseas marketing of Cycolac ABS resin, a product of the Marbon Chemical Division of the US concern Borg Warner.

The plastics division marketing policies and activities will be controlled by T. C. Hewlett and S. A. Horobin, both directors of Anchor.

J. M. Warnock has been appointed manager of the division. His experience in the various stages of development and processing of the ABS polymer has been supplemented by field work within the USA and in Marbon's plant and laboratories at Parkersburg, West Virginia.

A. K. Lucas has been appointed sales service manager (technical) and a team of technical and commercial representatives has been appointed to the division. Some of the members will be operating from Anchor's London office and some from J. and G. Hardie, Glasgow.

Plastics from Coal



Aerial view of the Emmen plant of Algemene Kunstzijde Unie NV

THE mineral resources of Holland are not great and are largely concentrated in the extreme south-east. Staatsmijnen in Limburg was established in 1902 as a mining concern and has now grown into a large-scale industrial enterprise with a wide range of activities. The main industrial activities are coal mining, coal utilization and chemistry.

Coal output is approximately 7.5m. tons per annum which represents about two-thirds of the total production in the Netherlands. A large proportion of this is devoted to products of direct interest to the plastics industry, as may be seen from the following figures.

Production of urea in 1959 was 70,000 tons and an extension to the plant has increased the capacity to 170,000 tons which figure should be reached in 1962. Caprolactam, which is the starting material for the Nylon 6 produced by AKU, is another product for which extensions are planned and production is expected to reach 30,000 tons within the next few years. Output of phthalic anhydride is increasing and the target is for 6,000 tons, double the 1959 figure.

Polythene

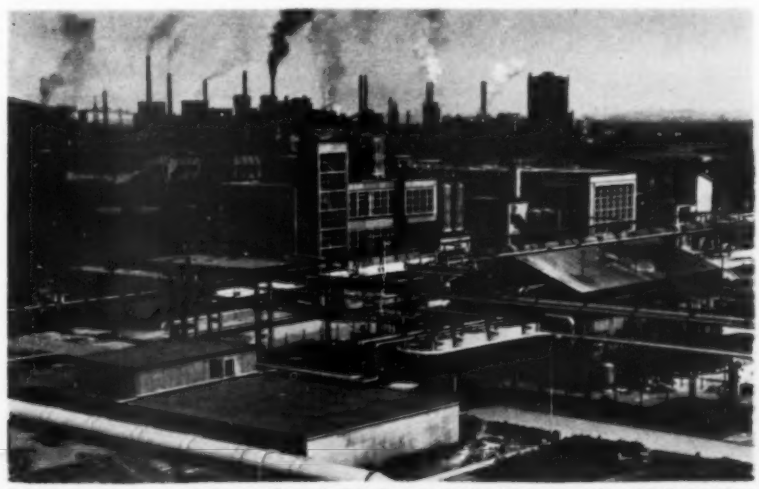
The plant for the production of high pressure polythene, which utilizes ethylene from the coke oven gas, came on stream in the spring of 1959 under licence from I.C.I.; the annual output has already reached 12,000 tons and the addition of two new reactor systems will increase the capacity to more than twice this amount. A low pressure polythene plant is also under construction which will produce (by the Ziegler process) 10,000 tons per annum.

The supply of ethylene from coke oven gases will no longer be sufficient when these extensions are complete and an oil cracking plant has been put under construction which will produce 25,000 tons of ethylene annually from light naphthas.

Apart from these materials an ever increasing number of by-products are obtained from which many valuable chemicals are produced. Among the many hydrocarbons made are xylene and toluene and a process for the production of very high purity benzene has been developed which provides a useful material for synthesis purposes. Plans have been made for the erection of a plant to produce phenol from toluene at Rotterdam, in conjunction with Dow Chemical Corporation. As reported in *RJIP* (Dec. 31 1960, 1076), plans have also recently been announced by Staatsmijnen for the construction of a formaldehyde plant with an annual capacity of 25,000 tons of a 40% solution of formaldehyde. This material, widely used in plastics, paints and glues, was previously imported and the new plant will more than satisfy the present demand.

Central Laboratory

Fundamental research and process development are carried out in the extensive laboratory which was established in 1940. Although early work was largely in the field of fertilizer production, which represents another important aspect of the work of the enterprise, of recent years the development work has been more and more directed towards the preparation of organic products especially plastics. The plastics processing section is well equipped with a range of machinery including injection moulders, extruders and equipment for filament production, bottle blowing and film blowing.



General view of the Staatsmijnen in Limburg. In the foreground is the Stamylan high-pressure polythene plant

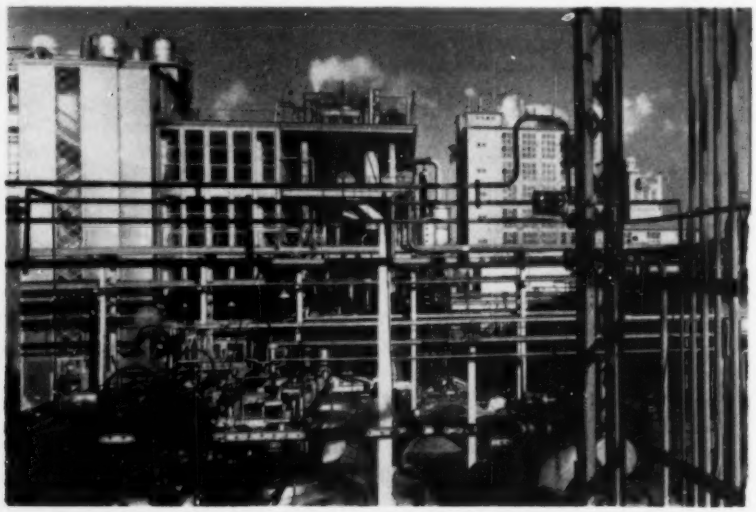
Nylon

The basic raw material for the nylon 6 produced by Algemene Kunstzijde Unie NV is caprolactam supplied in a liquid state by Staatsmijnen and transported in rail tankers. The AKU plant at Emmen in the north east of the country is one of eight factories owned by the group in Holland. It was established in 1952 in an area which was previously agricultural and where there was a high percentage of unemployment. Production originally was confined to textile yarns for the hosiery industry but has been considerably extended and includes staple fibres for the clothing industry and nylon moulding materials sold under the name Akulon which now constitute some 20% of the total output.

Polymerization Reaction

As received, the caprolactam has a melting point of about 70°C. and is delivered after the addition of catalysts, chain terminators and pigments, to the top of the polymerization columns which are vertical double walled tubes several metres high. These columns are heated to a temperature in excess of 250°C. by the circulation of Dowthern vapour at 260°C. and the polymer is produced as a thick melt at the bottom of the column.

The bottom of the polymerization vessel is sealed by means of a pump block containing small pumps which press the thick melt through a perforated metal plate. In this way thick threads are formed which are cooled by passing them through water and then cut into granules by a continuous process.



The Caprolactam produced in the Staatsmijnen plant shown in the photograph is largely used in the production of Nylon 6 at the AKU plant

These granules are washed to remove unpolymerized caprolactam and are then dried in big tumbler driers at 100°C. in vacuum. From the driers the granules are tipped into storage bunkers from which the material is packed in sealed tins to prevent moisture absorption.

Akulon

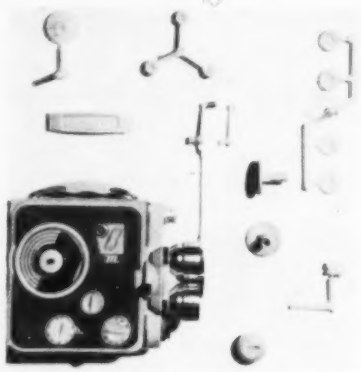
As mentioned above the nylon moulding powders produced by AKU are sold under the trade name of Akulon and although the majority of the material is nylon 6 produced as described a small proportion of nylon 6.6 is also manufactured from hexamethylene diamine and adipic acid.

Both nylon 6 and 6.6 have excellent properties but there are some differences which may affect the choice of material for a particular application. Nylon 6 is in general more easily processed, has a higher impact strength and greater resistance to fatigue than nylon 6.6 and produces articles rather softer and more flexible.

Numerous Applications

The Eumig camera illustrated takes advantage of the fact that the akulon gears need no lubrication and run very quietly. Although it might be thought that dimensional changes as a result of external temperature and humidity conditions would adversely affect the operation of the camera this has not been the case and satisfactory results have been obtained in widely differing climates.

Another application in which the self lubricating properties are an advantage is in the coning machines used in the textile industry where Akulon gears have been used by AKU for 10 years. The steel gears used previously had a life of only a quarter of that of the nylon ones, cost more and because of the need for lubrication, necessitated the frequent cleaning of greasy belts and pulleys, a problem which no longer arises as the nylon gears need lubricating only on being installed.

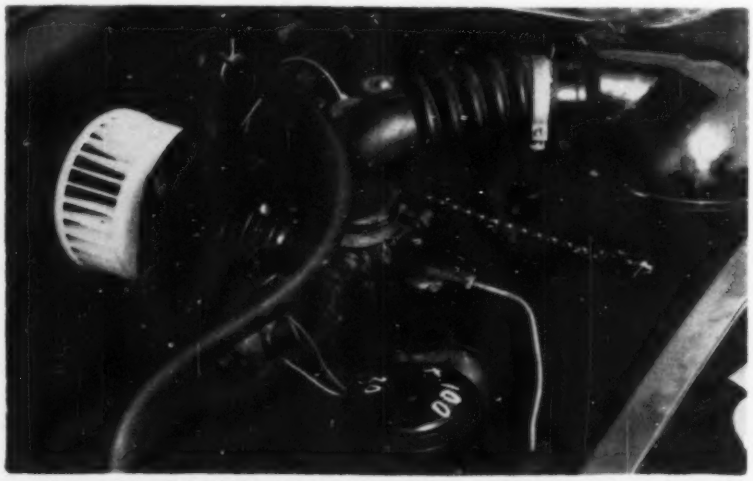


The Eumig ciné camera and the parts made from Akulon, needing no lubrication and running noiselessly

Future Prospects

There are of course many more possible applications for which Akulon will find a market in the future and if the Staatsmijnen plans to extend their caprolactam producing facilities are any indication then the production of Akulon is likely to increase substantially beyond its present figure of somewhere around 4,000 tons a year.

The Dutch are certainly making the most of their coal resources, of which there are estimated to be over 700m. tons still available, to build up a thriving national plastics industry, complimentary to the equally thriving petrochemical derived plastics industry stemming from the Shell refineries.



The fan used by British Ford for the ventilating and heating system is made from nylon. One property of the material which influenced its selection is its slight flammability

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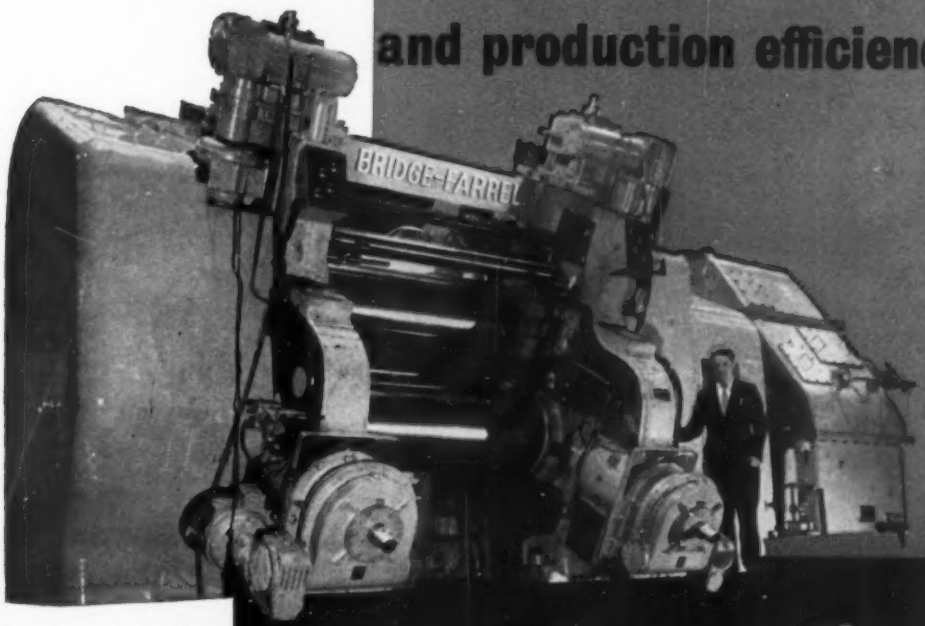

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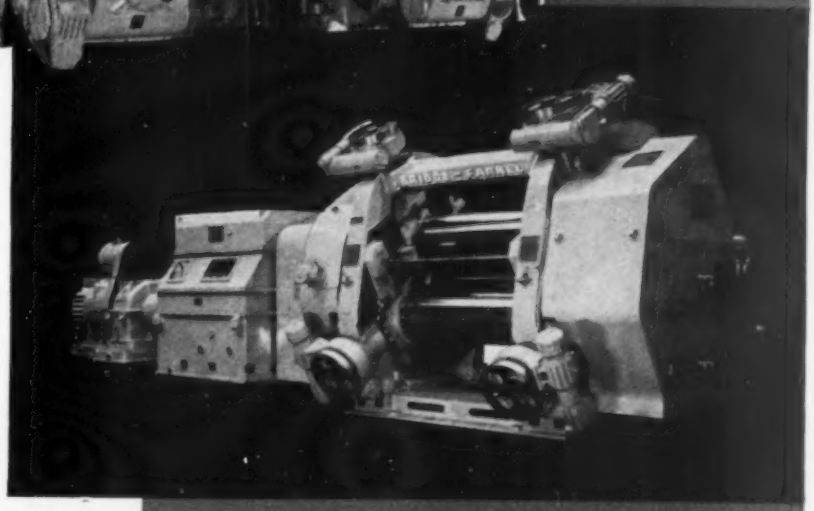

Bridge-Farrel 24" x 66" 3 Roll Triangular Calender. The illustration shows one of several recently built and in operation, and considered to be the fastest precision Rubber Calenders in the world.

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Rubber Trends in Australia

TYRE APPLICATIONS—HOME GROWN NR—SYNTHETIC INCREASE

By E. R. BOMPHREY

WHEN contemplating the subject of development trends in the rubber industry in Australia one is struck by the rapid expansion which has taken place in our usage of rubber over recent years and the position in which we find ourselves as consumers in relation to other countries throughout the world.

With our population scattered over a vast continent, the high usage of vehicles, coupled with climatic and geographical conditions affecting the life of the tyres and tubes used, has given us a rubber consumption per head of population which ranks third amongst the countries of the world, following that of the United States and Canada.

Almost 80% of our total rubber usage today is for tyres and tubes for these motor vehicles compared with perhaps some 63% usage in the United States where a larger proportion of the total consumption is related to non-tyre products.

It is clear then that the largest part of the development of this industry in this country is currently related to tyres and tubes and will probably remain in this field for some little time to come. Relief from war-time restrictions, followed by the rapid development of our country has caused our total consumption of rubber to double in the last ten years from a mere 27,800 tons to some 56,500 tons annually, excluding reclaimed rubber.

Synthetic Increase

During this period the proportion of synthetic rubber to total rubber used increased from approximately nil to almost one-third. The swing to the use of synthetic in tyre production is, of course, mainly responsible for this increase, and while the percentage varies from company to company according to the proportion of truck and passenger tyres made, the Australian tyre industry overall is today using probably something of the order of 35% synthetic to 65% natural and it looks as though this will become the stabilized figure in this country for the next few years at least until developments in the synthetic natural rubbers affect our usage here.

* *Condensed from the sixteenth foundation lecture of the IRI Australasian section, delivered by Mr Bomphrey in Sydney on September* 23 1960.

As the economy of the rubber industry is so closely linked with the development of motorized road transport in Australia, it would be interesting to examine some of the relative figures.

At the end of last year we found that we had some 2.6m. vehicles on register, some 268,000 new vehicles having been added throughout 1959; 1960 figures are running about 20% higher than same period in 1959. Reasonable estimates seem to suggest that by 1970 some 350,000 vehicles will be registered each year with a total registration of some 4¼m. vehicles. This would give us one vehicle to each three people which is a good deal closer to the American figure at the present day. If this forecast is correct, the total number of tyres produced will be around 6½m. per annum compared with the current rate of 4 to 4¼m. At that rate, our total consumption of rubber will be approaching a figure of 100,000 tons per year.

As some 90% of the world's natural rubber comes from the South-East Asian area, an area which is inevitably a centre of attention in the case of unrest or hostilities, it seems sensible to consider the immediate developments which are taking place in Australia in connexion with rubber.

Natural Rubber

Natural rubber is not produced on the Australian mainland but the industry is established in a small way in the territory of Papua and New Guinea, where exports for the year 1958/59 amounted to 4,380 tons. It has been estimated that production will increase gradually at the rate of about 100 tons per annum over the next five years. Australian manufacturers purchase the entire production, which at present represents approximately 11% of Australia's natural rubber requirements. It is interesting to note that the area planted in the territory is 28,000 acres for a yield of about 314lb. to the acre.

The Australian Government is assisting the development of this industry in the territory. Stocks of high yielding plants are being built up by the Department of Agriculture and planters are being encouraged to replace their low yielding trees with the high producing stock. A rubber experimental station has been established near Port Moresby, standard grades have been set and a system of inspection adopted to ensure that all rubber produced conforms to world standards. However at the present time there is no indication that any spectacular increase will occur in rubber production in the territory.

Guayule

The possibility of growing guayule rubber in parts of West Australia is being investigated and some trial plantings have been done at different centres. However it is far too early to know if an industry could be established on a profitable basis. It must also be borne in mind that the United States did a lot of experimental work on guayule during the war years, and it has never been considered a satisfactory source of natural rubber.

Synthetic

A synthetic rubber plant to produce 'S' type synthetics is being developed at Altona with American capital and American know-how, and will probably be in operation by late 1961. The plant should make Australia independent of imported SBR types of synthetic rubber, although it is doubtful whether all oil extended types will be produced there. Undoubtedly equipment will also be installed to produce carbon black masterbatches as Australian carbon black plant is located close by.

The latest overseas developments, of course, are in the manufacture of polybutadiene and polyisoprene. These materials are being developed very rapidly and plants are being installed to meet the growing demand. At the present time up to 50% of either of these two synthetics can be mixed with natural rubber and used to advantage particularly in truck tyres.

So far natural rubber has dominated the heavy tyre market as the general purpose synthetic rubbers have not been able to make significant inroads here in contrast with the passenger tyre market. However, from now on natural rubber will have to face some competition from man-made rubbers such as the two mentioned above as these can be used with advantage in heavy truck tyres.

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Recent price trends on the natural rubber market certainly make the newer rubbers an attractive buy. The relative indicated cheapness of these man-made rubbers has surprised observers but final decisions have not been made on price policy yet. It has been suggested that the price of polybutadiene rubbers should be allowed to fluctuate in line with natural rubber prices but this could prove to be unwise, and would destroy one of the advantages all synthetic rubbers have and that is their relatively stable prices. Of course, it is difficult to be certain about the prospects of polyisoprene particularly, if and when the price of natural rubber falls below 30d. per lb., but, as long as the qualitative differences between the two products are negligible, it seems reasonable to expect many users to prefer a synthetically produced material, especially as the stability of its price would be assured.

Tyre Cord

Tyre cord is almost the very backbone or the structural stress carrying framework of every tyre. Constant improvements in tensile strengths, elongation, fatigue resistance, resistance to heat and moisture and adhesion to rubber compounds are highly desirable and such improvements are being sought continuously. There are two main types of tyre cord in general use in Australia, rayon and nylon. Rayon tyre cord is still used in most passenger car tyres, some truck tyres and most farm equipment tyres. There has been a continuous improvement in rayon over the last few years and particularly in the last 12 months, and Courtaulds of Australia are now producing Tyrex.

Nylon tyre cord is used in premium quality passenger car tyres, high speed and heavy service premium truck tyres and tyres used on earthmoving and mine hauling equipment, and aircraft. New and better types of nylon are also under constant development and British Nylon Spinners have announced their intention of producing nylon tyre cord in Australia. Also, another group from America, the Allied Chemical Company, are expected to be producing nylon '6' in Australia within the next 12 months.

The various advantages and disadvantages of nylon versus rayon or Tyrex have been widely publicized in American journals and this has become known as the battle of the fibres. Regardless of whether the rayon or nylon producers win the current conflict, tyre manufacturers foresee continued improvement in synthetic tyre cord and what is here today will undoubtedly be replaced by something better tomorrow.

Excellent work is being done by our local carbon black factory in keeping us supplied with the latest types of carbon black. They are able to supply not only samples but shipments of the latest types of oil furnace blacks, particularly the ISAF low modulus and channel type oil furnace black. These blacks were produced in Australia in commercial quantities only a matter of weeks after their release in America and in England; there is probably as much of these new type carbon blacks being used in Australia as in England or the Continent and percentagewise in America.

No major changes have occurred in the past 12 months in the normal compounding ingredients used in the rubber industry, although there have been minor improvements in various types of anti-oxidants and accelerators. On the design side heavy expenditures are being made for new methods and equipment to improve still further the overall quality of our products with special emphasis on greater uniformity.

Tyre Design

Uniformity in tyres means considerably more than consistent uniform quality. High speed cars and trucks demand tyres that will roll smoothly without vibration caused by small variations which can occur within the tyre. The smoother the road and the quicter the vehicle becomes, the softer the suspension, and the more these tyre irregularities become noticeable and objectionable. Improvements are extremely necessary these days to enhance the performance of present and future car models and all car engineers desire tyres with the following qualities: vibration free, smoother rolling, increased cornering ability, better cushioning with softer ride, less road noise and squeal, less rolling resistance, elimination of the spare tyre and elimination of any flat spotting. These are the problems that tyre engineers of all companies in Australia are all working on at the present time. All of these problems have been solved to some degree and, of course, constant research and development sees more improvements being brought in almost weekly.

When it comes to truck tyres, the tyre engineers' problem is more than ever to design and develop tyres which will wear much longer at higher speeds but at the same time run much cooler. This has been accomplished to some degree by the use of nylon. A lot has also been done to road surfaces by improving corners, taking off a lot of the corrugations and while there is much yet to be done in general, our main roads particularly have been improved.

As the roads have improved so the speed of the truck has increased to some degree but the operators themselves are becoming more conscious that if they travel at high speeds and their vehicles are overloaded, then tyre performance will drop off. Over the last few years a lot has been accomplished in educating truck operators on how they can run more economically just by adopting the right road care and maintenance of their tyres and vehicles.

Equipment

In the past few years there have been many outstanding developments in machine and process design all aimed at greater mechanization to counter rising production costs, to improve and control quality and to reduce the manual effort on the part of factory operatives thereby increasing their efficiency and, at the same time, making the job more attractive.

The most impressive results have been achieved in the mixing, tyre building and moulding sections of the industry. The almost universal No. 11 Banbury mixer is now operating on the high horsepower/high pressure system. Motors of 1,200 horsepower and ram pressure of 80lb. per sq. in. are being used and both these features are more than double the previous standards. Such large scale increases in machine efficiency require the utmost in materials handling and discharge techniques if maximum benefits on reduced mixing cycles are to be gained. For instance, the old style sliding door discharge was accounting for 25% of the new cycle time and for this reason the makers have designed a new hinged type door which is nearly instantaneous in operation.

To streamline the mixing processes further, we hear of stocks from the first stage pass being fed directly to the final or sulphuring stage and thus by-passing operations such as milling, sheeting-off, cooling, stacking, storage and floor transport. This direct feeding is being done by dumping into a large pelletizer, cooling the pellets on a belt conveyor and then pneumatically transporting them to storage hoppers over the sulphuring Banbury's. Sulphuring or final pass cycles have been reduced with large horsepower motors, and direct feeding of large volume stocks to departments such as tread and calender is another avenue for appreciable savings in stock handling. High speed quality checks have been designed to control stocks handled this way and these operate successfully.

In overseas factories, mixing and

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sulphuring cycles are being controlled automatically by punch cards and magnetic tape systems so that the operator bcomes an observer and attends to more than one machine.

Cord processing calenders have design refinements incorporated. Skew roll adjustment, or alternatively, roll bending have replaced cambered rolls and provide for infinite control of roll deflection which allows the operator to obtain even gauge across the cord irrespective of the plasticity of the stock being calendered. Contact gauges have been replaced by beta ray gauges of the transmission and back-scatter type which operate with greater accuracy thus permitting tolerances to be reduced. This results in sizeable stock economies with improved quality. Cord width control equipment has been perfected and is a very positive aid in quality and cost control. Calender speeds have been increased and modern four roll units run as fast as 100 yards per minute.

Tread extruders are to a more rugged design and new screws have been developed which, with auxiliary pressure feed rollers, give upwards of 40% increase in output. Duplex extruding heads, together with twin opposed extruders, produce one piece treads which have different stock qualities in tread and sidewalls. In this way the tyre compounder can put the right quality stock where he wants it for better tyre performance.

Tyre Building

Tyre building techniques have been revolutionized in that all passenger, light truck and tractor tyres are being built by the single ply method. This method is also extending into the full range of dual bead truck tyres and the smaller earthmover sizes. Cut plies are fed direct from a table extension at the bias cutter straight into the servicing turret at the building machine. By this means the operations of batching cut plies, storage, pocket and band building are eliminated with savings in labour and floor space. In addition, the builders' output is increased — maybe 100% with passenger and up to 50% with truck and tractor, and with less effort.

One of the outstanding developments in post-war years has been the advent of the automatic tyre curing press for passenger, truck and tractor sizes. This machine which is fitted with an integral pressure bladder automatically performs all steps of the tyre curing cycle. Semi-automatic and automatic loading together with automatic unloading has been applied to these presses. Semi-automatic loading is an established method but automatic loading and unloading require further development before they can be regarded as practical operations.

Foam Rubber

Perhaps the most interesting developments in fields other than the tyre industry are taking place in the foam rubber field. Although well established before the war, the foam rubber market exhibited particularly rapid progress only after 1946. Sales of latex foam in 1947 were still comparatively small but by 1950 they had gone up approximately five-fold. In 1955 the 1950 figure had been increased again four-fold, but then levelled out in 1959 and 1960. More recently the latex foam business has been checked by competition from plastic foams such as urethanes and, to a lesser extent, vinyls.

The urethane foams began to reach the market in 1955 and 1956. It was then a more expensive material than natural latex and significantly inferior in its performance characteristics. The relative cost and poor cushioning properties were sufficient to outweigh such things as its durability, its lightness and tear resistance. By 1959 successive technical improvement in the product and material reduction in its cost transformed the position. The modern polyether based urethane foam, with allowances made for its lower density, is now a significantly cheaper material to use than even a latex foam with a high synthetic latex content. Persistent problems in moulding to contoured form are a disadvantage to its many applications although these are now being overcome.

Performances of vinyl foam closely resemble those of latex foam except in respect of compression set properties which so far remain inferior. Vinyl foams apart from their advantage of fire resistance, lightness and durability, can also be moulded. The largest single outlet for foam products is in transport equipment and most of the new automobiles are fitted with foam seats of some description. It is interesting to know also that more than one half of the upholstered furniture produced incorporates foam cushioning. Plastic foam has made heavy inroads into this particular market.

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Yours faithfully,
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Economic Editor,
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CHARLES JENNINGS

Retreading Mould

Sir,

In your issue of December 24 (page 1065), you refer to a retreading mould in operation in Johannesburg treating the size 33.5 x 33.

This may be the only mould of its *type* in the world, but we are regularly treating this size at our Wembley works, and all other 'off-the-road' and earthmover sizes up to the 33.5 x 33 size.

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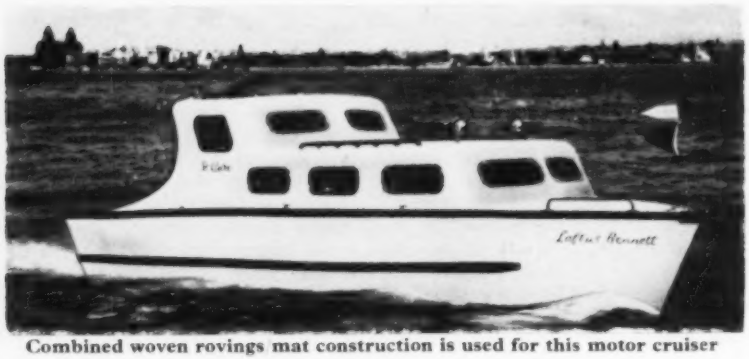
Nation of Boat Owners



Combined woven rovings mat construction is used for this motor cruiser

IMPRESSIONS OF THE INTERNATIONAL BOAT SHOW

THE emphasis at this years International Boat show is more than ever on glass reinforced plastic structures. An even higher number of exhibitors than last year are showing craft of many types constructed in this way.

Domestic trends in this country seem to follow American ideas both in the acquisition of family possessions, and to a lesser degree in leisure activities. The car, for many years the social status symbol of the average American family, has since the last war been taken up by thousands of people in this country who had previously never dreamed of owning a vehicle. In the same way the interest in small boats is growing rapidly as it has in America, where the boat has largely ousted the car as the status symbol, and thousands of newcomers take to the water every year.

Marketing Methods

The reason for this rapid growth in popularity is not difficult to find. Firstly the advent of glass reinforced structures coupled with improved mass production methods have resulted in cheaper, lighter boats being available, which can be bought 'off the peg' and which can easily be towed behind a small family car. Secondly the methods of boat distribution have altered radically and motor showrooms all over the country are now exhibiting boats of all classes and boat showrooms are opening in many inland towns and cities.

Because many of the boats sold must be transported easily, lightness is a top priority and an interesting new type of lightweight hull construction is rapidly gaining in popularity with many British boat builders.

This uses a combination of woven glass rovings and glass mat and is a technique which has been almost universally adopted by American boat builders for several years. The use of rovings in combination with mat has advantages over either of the components used alone. Mat produces bulky laminates with good rigidity and compressive properties and high resistance to impact but which are poor in tension, have high resin pick-up and therefore tend to craze on impact thus making them suspect for use in the wet. Roving laminates on the other hand have far higher tensile and flexural strength and lower resin pickup. When both are used together the final structures embody the advantages of both types.

Both the boats illustrated are built by this method using Fothergill and Harvey Ltd. Tyglas materials. The motor cruiser is shown on the stand of Loftus-Bennett Marine Co., and is probably the largest towable cabin cruiser of its type. It is very strong, can accommodate the whole family and is easily towed by a small car.

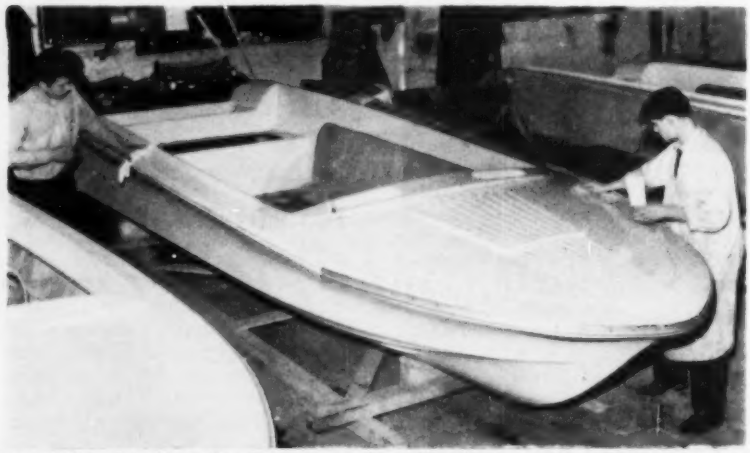
Epoxy Mould

The elegant 16ft. outboard day cruiser made by Healey Marine Ltd., was fabricated in a plastic mould manufactured from Araldite epoxy resin supplied by Ciba (ARL) Ltd., whose exhibits at the show include a new resorcinol adhesive for boat building (*RJIP*, January 7, 29). This is a two liquid system that has been developed to facilitate mixing and spreading, to prevent rapid drying-out and to improve the curing properties at low temperatures. Other names familiar to members of the rubber and plastics industries are to be found among the exhibitors at the show. These include Avon India Rubber Co. Ltd. who are showing a composite range of inflatable craft which will stow away in the minimum amount of space and which can be fitted with outboard motors and other accessories. Other products include sea boots, thigh boots and inflatable life jackets.

Leicester Lovell and Co. Ltd. are manufacturers of synthetic resin glues for boatbuilding and also on show on their stand is Cascover sheeting, a patented nylon process which ensures a completely watertight hull, increased resistance to abrasion and damage by impact and a reduction in maintenance costs.

Courtaulds Ltd. have collected on their stand garments woven from

Continued on page 66



The finished hull of the Corvette outboard cruiser, made by Healey Marine Ltd., prior to fitting deck, hardtop and fittings. Woven roving mat construction is used here to give a light but strong structure

In the research laboratories of industry, chemists continue the search for new formulæ and new compounds to resolve their manufacturing problems.

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VIEWS and REVIEWS

DAILY it gets easier not to understand technical writing. Anyone who wishes to keep in touch with modern technical developments is therefore forced to depend on simplified interpretations, of which, fortunately, there is no lack at present. In this field, praise must be given to those large manufacturers who issue works journals and other literature describing in simple terms the manufacture, properties, and applications of their products. Some are extremely well done in writing and presentation.

The latest to reach me is *Der Lichtbogen* (shall we translate it 'The Archlight'?) Vol. 9, No. 11, November 1960, the house-journal of Chemische Werke Hüls AG and Bunawerke Hüls GmbH. This issue deals with 'Ziegler chemistry' which, to rubber and plastics people, and indeed to the world at large, is one of the greatest discoveries of modern times.

What Ziegler Has Done

You might say that Ziegler has discovered some new catalysts. You might say that he has opened up a new field of chemistry. You might say that he has revolutionized the application of plastics to consumer goods and shown the way to new and better synthetic rubbers. This journal says all those things.

'Professor Dr Karl Ziegler has discovered catalysts for making many different unsaturated hydrocarbons which could not previously be made easily, if at all, and which can now form the raw materials for the plastics and rubber fabricating industries.

'A whole new field of chemistry — known as Ziegler chemistry after its discoverer, Professor Dr Karl Ziegler, Director of the Max-Planck-Institutes for Carbon Research in Mülheim — is opening so many new aspects both scientific and commercial and technical that it is no exaggeration to say that it is the most important new discovery of the last few years.'

With the name of Ziegler is often coupled that of Natta, who, working on the fundamental principles outlined by Ziegler, has extended them into new scientific and technical fields.

'Ziegler chemistry,' says this journal, 'is now one of the most interesting fields at the beginning of the new age of synthetics.' The interest of the Hüls companies is that by means of Ziegler catalysts they make large quantities of polythene, polypropylene, and intend to apply the method to butadiene for making SBR. They are engaged in wide research on the production of other hydrocarbons for moulded products, for tyres, and for fibres.

Organo-metal Compounds

Karl Ziegler has been interested in organic compounds of the metals for over 30 years. Some of the simpler ones were known at the beginning of the last century, for example potassium acetate and calcium carbide. Frankland worked on them in 1849, producing methyl zinc iodide and from that methyl zinc which he found to be extremely — indeed dangerously — reactive. From this work were developed compounds of aluminium and methyl and ethyl chloride which produce triethylaluminium, one of the early catalysts studied by Ziegler.

The technical importance of such materials is that they can accelerate polymerization reactions to such a degree as to produce, with low or no pressure, for example, ethylene polymers of molecular weights of the order of 100,000. The Ziegler catalysts are usually mixtures of triethylaluminium with titanium, zircon, vanadium and chromium salts, and aluminium can be replaced by magnesium, beryllium, or boron in the organic compound.

High-pressure polythene (1500 atmos., 200°) has been known since 1934; the Ziegler mixed catalysts enable it to be produced (with improved properties) at ordinary pressure. The Ziegler catalysts also make possible the production of 'synthetic natural' rubber.

An article in this journal called 'Research with Ziegler Catalysts' by Dr H. Weber begins: 'Prof Ziegler wanted to distil ethyl lithium and found that it formed butyl lithium. This observation was the beginning of the discovery of the Ziegler catalysts . . .' and led to the finding of the value of mixed catalysts from which research proceeded on a broad front, leading to the polymerization of propylene, butylene, styrene, butadiene, and isoprene. Given the initial idea, these achievements were not really surprising; more astonishing was the effect of these new catalysts on the molecular structure which, in some polymers, was found to be the same as structures previously found only in some natural polymers. From such structures, new and so-far-unattained properties and application possibilities resulted. For instance, Natta produced the first crystalline polythene and was able to clarify the structural principles of polyolefines and polydiolefines. This led to the conception of the isotactic structure which I described last week. Later, Natta produced the syndiotactic and atactic structures.

It is as if the various Ziegler catalysts were templates for the production of specific molecular designs. Weber's article gives data on some of the properties of some of these polymers.

Surprising Results

Perhaps more surprising, Weber says, are the results of polymerizing butadiene and isoprene.

'In many places independently of each other and firstly in the USA by Goodrich-Gulf Chemicals Inc., it was established that with special Ziegler catalysts it was possible to produce a 1,4 cis-polyisoprene, a desire of the chemist since Harries showed the structure of natural rubber to be of this kind. The synthetic product is, in practically all its properties, the same as the natural. Another Ziegler catalyst leads to a 1,4 cis-polybutadiene which is similar in many ways to natural rubber.' The article goes on to particularize several other technically interesting polymers and especially the cyclic dodecatrienes.

These results have a wide technical significance. For instance, they throw light on what goes on in the living plant, wherein enzymes which approximate to Ziegler catalysts bring about the synthesis of stereospecific polymers from water and carbon dioxide. In a similar way, we may learn from this work more about the growth mechanisms of our own bodies.

For the specialist, there is an article in *Der Lichtbogen* called 'Determination of the Molecular Structure of

COMMENT ON SCIENTIFIC AND INDUSTRIAL MATTERS

by **F. C. JENNINGS**

Ziegler Polymers' by Drs Breiner and Cantow. It deals with the application of spectroscopy to polymers. The chemist will also find of interest an article by Dr W. Kirchof on cyclododecatriene from which can be synthesized a polyamide, dodecanolactam, having properties similar to nylon, and also a dodecan diacid which forms esters useful as plasticizers.

There is a description with illustrations and a flow diagram of the production of 'Vestolen' polythene, and an article by Dr F. Engel of the Rubber Development Group of the Polymerization Department on polybutadiene, looking forward to 1963 when the output of the Hüls factory will be 20,000 tons for truck and aero tyres.

AP-Rubber

An article in *Der Lichtbogen* by Dr Hagel of the Plastics Development Group begins: 'It was in 1955 that Prof Natta discovered that the copolymerization of ethylene and propylene in the presence of a certain mixture of Ziegler catalysts led to the formation of elastic products which from the Italian investigations were known as "C23" and afterwards called by Montecatina "Dural." In Germany, the abbreviation "APK" (Athylen-Propylen-Kautschuk) has been coined.'

'The chemically unsaturated nature of the new rubber, as with all unsaturated hydrocarbons, bestows outstanding resistance to weathering, heat, light, ozone, acids, and bases. In this way, it is advantageously distinguished from natural rubber and the several synthetic rubbers which consist chiefly or solely of diolefines like butadiene or isoprene containing reactive double bonds.'

Problems in manufacturing AP Rubber lie in the restricted choice of catalyst and in separating and purifying the rubber after polymerization. From the user's point of view, there is the problem of vulcanizing for which sulphur and accelerators are of no use as with ordinary rubbers but which calls for peroxides.

'Thanks to the fruitful teamwork of polymer chemists, process engineers, application technicians, and analysts, the new rubber is now being produced in pilot plant quantities. Development of its applications can now be studied.'

Testing and Applying the New Polymers

The article, 'Testing of Ziegler Polymers,' by Dr H. Paul begins rather naively with the statement that it does not often happen that samples of a product already being made in thousands of tons are dumped on the table of the Applications Technician with the request to 'make something out of it.' Laboratory investigations have already determined its main characteristics on which its applications depend and the laboratory will also ensure that it possesses the quality, important from the buyer's angle, of uniformity. Some of the test methods and results at Hüls are given.

The last three articles in the German magazine are concerned with polythene. First is given a list of its uses, in building, textiles, motor cars, machine construction, domestic articles, foodstuffs industries (*e.g.* baskets for fish), containers for beer, electrical and radio apparatus, and for packaging. Next is a description of the uses of polythene in the form of threads.

'The production of threads from high-pressure polythene has already been known for several years. Because these threads possess only low tear resistance, they have limited application possibilities. They are made in mono- and multi-filament form. Fishing nets, filter cloths, and composite fabrics are possible applications but the field is not very wide.

'Specs'

Another organization deserving a word of congratulation in our industry is the Federation of British Rubber and Allied Manufacturers. Editorially, this journal has already congratulated the Federation on its wise decision to alter the basis of its membership from trade associations to individual firms. I know at first hand the excellent work done by the Federation on behalf of the whole industry in technical matters; to its Technical Committee, the industry owes a lot and it is to be hoped that there will be a good response from the firms in the industry to the appeal of the president, H. G. W. Chichester-Miles, and the director, Mr Stuart Covell, to join up and help. (I might add, also to avail themselves of the Federation's help.)

In one technical sphere especially, the Federation has done an outstandingly good job for many years — the sphere of specifications, and especially of British Standards. A large part of the time of its Technical Committee meetings is taken up with the consideration of new specifications, and, in addition, its individual members devote time to the details in both a constructive and a critical capacity. It concerns itself also with the larger aspects of specification policy and I am going to be so bold as to prophesy that one of its most important contributions to the commercial well-being of the industry will turn out to be the recent publication of its proposals for improving rubber specifications.

Constructive Proposals

There are not only many rubber specifications but many kinds of them, some legacies from wartime conditions, some drawn up by people ignorant of rubber technology. A technical sub-committee of the Federation, after several years of study and negotiation, has made positive and constructive proposals for sorting out the confusion and preventing its recurrence. It has issued a Guide to the Drafting of Specifications, and a helpful questionnaire aimed at revealing the actual conditions under which the product concerned has to operate and therefrom the appropriate properties and tests required.

One of the most valuable results of the whole scheme should be to reduce the large number of specifications. As the secretary to the Federation Specification Advisory Committee, Miss C. H. Chenhalls, says in her covering letter: '. . . situations frequently arise in which a slight modification in design will enable a standard form of bush, seal, mounting or coupling to be used with considerable saving in trouble and expense.'

She emphasizes the importance of early consultation with the rubber manufacturer when a new specification is desired.

'He can ensure that the properties most vital for the particular application are given due priority, and that the tests prescribed are practical, effective, and adequately related to ultimate performance . . . it may be possible by a slight modification in the shape of a component to reduce considerably the cost of manufacture, and improve the ultimate performance as well.'

Is it not surprising that such an obvious suggestion should have to be made?

CHARLES JENNINGS

MEN *and* MATTERS

A Review of People and Events

by Peter Richards

BOWLING is said to be the largest participating sport in USA, and it looks as though it is going to be very popular here. Since the opening of the Stamford Hill tenpin bowling centre a year ago, five other bowling centres have been opened.

Canadians play a fivepin game — recently introduced into Scotland — which gave rise to an out-of-the-way export order for Porous Plastics Ltd., the Dagenham firm.

Keeping the Customers Happy

Canadian pinsetting machines work on compressed air. In order to keep the customer happy it was found essential to cut down the noise of the exhaust air from these machines. Many ideas were tried and rejected and then the manufacturers of the pneumatic equipment, Martonair Ltd., thought of making the body of the silencers out of Vyon.

This is a permeable high density polythene of medium pore size that has proved itself in silencer and filter applications. In the pinsetting machines it effectively silences the noise from air valves and its permeable structure permits very high airflow.

Largest Cabot Meeting

The largest Cabot Corporation meeting of its kind was recently held at Sanderstead, Surrey.

The meeting was attended by 36 delegates from the UK, French and Italian companies and from the corporation's headquarters in Boston, Massachusetts. Companies represented were Cabot Italiana SpA, Cabot Carbon of Canada Ltd., Cabot Carbon Ltd., Cabot France SA, Cabot Europa and the jointly owned company of Australian Carbon Black Pty. Ltd.

The meeting brought together personnel concerned with research and development, and sales and technical service, who discussed matters of current and future interest to the rubber and carbon black industries throughout the world. Particular emphasis was placed on ways and means of improving and extending present sales and technical services. Cabot's new low modulus oil furnace grades — the Regal series — figured largely in the technical discussions.

Takes On Advertising Too

Rolla H. Taylor, sales manager of Scott Testers Inc., of Rhode Island, USA, has also been appointed advertising manager. He will be responsible for all Scott Testers' advertising, publicity and public relations, in addition to his sales management duties.

India's New Ad Manager

The India Tyre and Rubber Co. Ltd. have appointed Desmond Lowe advertising manager.

Mr Lowe joined the tyre industry in 1937 and volunteered for the Territorial Army prior to the outbreak of war. He served in the Royal Engineers and R.E.M.E. in India and after demobilization took up a position in the company's original equipment division.

He was made manager, technical sales, and later became sales development manager. Latterly he has been assistant advertising manager working with the late Mr R. M. Davis.

Smith and Nephew Changes

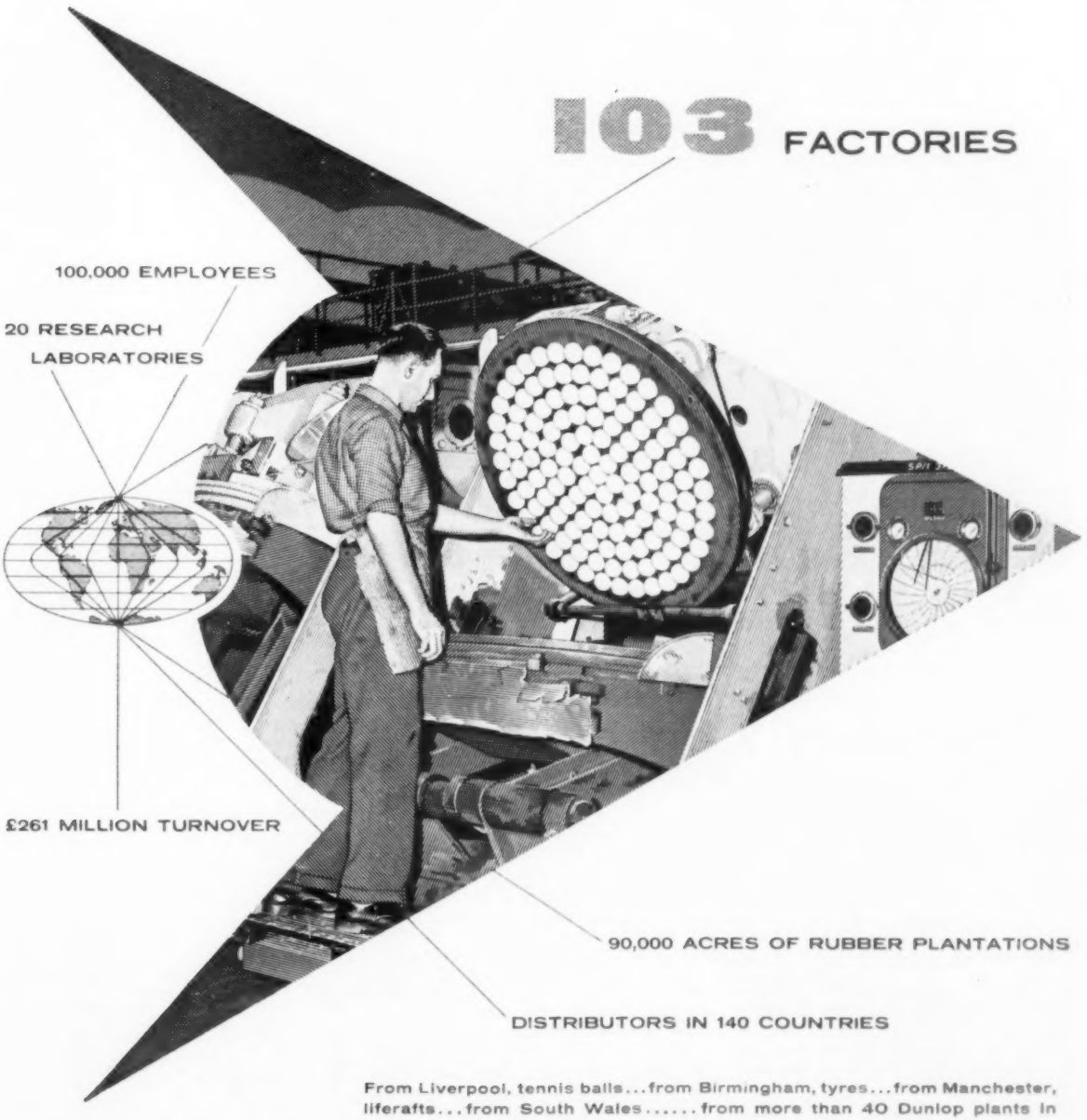
Mrs M. Charlton, Mr K. W. Bradshaw, Mr S. J. Clarke, Mr G. A. Hazlitt, Mr D. E. Seymour and Mr T. L. Whittaker, all of whom are senior executives within the group, have been appointed to the Board of Smith and Nephew Associated Companies.

Mr E. Robinson and Mr F. M. Medhurst, after 48 and 42 years' service respectively with the group, and Colonel B. C. Lockhart-Jervis and Mr J. W. Hamilton-Jones, who have reached the age of 74 years and

The international flavour of Cabot Carbon's technical-sales meeting at Sanderstead is shown by the delegates attending (back row left to right): G. de Bagneux (France), L. B. Mac Queen (UK), R. S. Laffoley (UK), E. Cheetham (UK), V. Maraux (France), D. J. Christopher (UK), D. Patterson (France), H. Figielski (France), R. P. Rossman (USA), E. M. Dannenberg (USA), J. B. Horn (UK). (Middle row, left to right): D. Harper (France), G. Kuderer (France), A. Caliendo (Italy), G. Beer (Italy), P. Pasetto (Italy), I. R. B. Belsham (UK), W. E. Campaigne (UK), G. H. Cash (UK), D. E. O'Mulloy (France), J. A. Satterfield (UK), A. A. King (UK), B. Thorley (UK), R. I. Wood (UK), D. Lassaillv (France). (Front row, left to right): G. T. P. Raymond (France), R. J. Holder (USA), T. D. Bolt (USA), R. E. Dobbin (USA), J. Andrews (USA), W. L. Loving (USA), E. R. Eaton (France), U. Massari (Italy), C. Beech (France), N. Scott (UK), C. de Sercey (France)

(See Largest Cabot Meeting)

BEHIND THE DUNLOP SYMBOL



From Liverpool, tennis balls... from Birmingham, tyres... from Manchester, liferafts... from South Wales..... from more than 40 Dunlop plants in Britain come a vast range of consumer and industrial goods. And in a dozen overseas countries the Company's new symbol identifies equally diversified and continually expanding manufacturing activities.

Only last year new factories in France, India and Rhodesia went into production, and plans were advanced for a second tyre factory in Japan. These resources and developments behind the Dunlop symbol are reflected in the progress of motoring, aviation, mining and countless other industries —and in the greater comfort and convenience we all enjoy in our daily lives.

DUNLOP SYMBOL OF PROGRESS

73 years, respectively, have retired from the board of the company.

Good Housekeeping

Monsanto's annually awarded Chairman's Good Housekeeping Trophy has been won for 1960 by the company's polythene factory at Fawley, near Southampton.

In presenting the cup to the factory last week, Sir Miles Thomas, the company's chairman, said: 'We are very proud of our good safety record in Monsanto. It compares very favourably with the record of the British chemical industry and even more favourably with that of British industry as a whole.'

Sir Miles made it clear that Fawley — a new factory using an exceptionally clean manufacturing process — was for these reasons severely handicapped by the inspecting committee. The trophy is awarded to the company's best kept factory.

Sir Miles Thomas, chairman of Monsanto Chemicals Ltd., presenting the Good Housekeeping Trophy to A. C. W. Pemberton, general superintendent of production at Fawley. On the right is Dr E. W. Bodycote, Fawley works manager *(see Good Housekeeping)*

Honours List

Two names were omitted from last week's review of the New Year's Honours List in these columns. J. C. Bennett was awarded the C.M.G. and C. E. T. Mann the C.B.E.

The award to Mr Bennett was for his services as Rubber Adviser to the Board of Trade. He is, of course, a well-known figure in the rubber industry and is Joint Managing Director of Henry Gardner and Co. Ltd. A past chairman and still a member of the committee of London Rubber Traders, Mr Bennett has over many years rendered service to the Rubber Study Group and to the rubber industry.

Mr Mann, who retired last year, was director of the Rubber Research Institute of Malaya from 1946.

He was responsible for reorganizing the Institute after the war. At that stage chaos still reigned; most of the records were missing, and there was only a skeleton staff. He overcame all these difficulties, and, during his directorship the great spurt forward in post-war natural rubber research took place, with its important applications to both estates and smallholdings.

The industry's gratitude was shown when Mr Mann was awarded the Institution of the Rubber Industry's Colwyn Medal in 1952.

Question Corner — 152

(Second Series)

477. What are polyisocyanates and how are they synthesized?

(Answer next week)

Answer to Question Corner — 151

476. Blow moulding of polythene bottles has been developed by the adaptation of either injection moulding or extrusion equipment. When made by the injection moulding technique they are usually produced by a double mould system. A pipe-shaped preform is first produced in a conventional mould and, while the preform is still hot, the injection mould opens and the preform is transferred to the bottle mould, or the bottle mould closes on the preform in place. The preform, while still at a uniform hot temperature, is then blown by means of compressed air, to the shape of the bottle mould.

A polythene resin is required which exhibits good high-pressure flow properties and which will fill the preform mould quickly without the appearance of melt fractures which will impair the surface of the blown bottle. The material must also possess the special property required to expand into a bottle with uniform wall thickness without blowing through at any point.

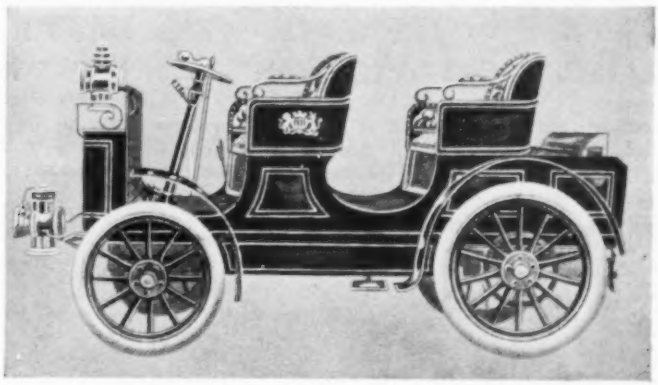
Short injection time is required, with barrel temperatures as low as possible. Dwell time in the bottle mould must also be short. All this indicates the use of a high melt resin but not exceeding about 10.0 because such resins tend to have poor blow properties.

Making a good preform by injection moulding calls for about the same operating conditions as are required to produce a good high-gloss product. Moderate injection temperatures, minimum pressures and warm preform moulds are important. Injection temperatures must be high enough, and pressures low enough to eliminate flow marks from the moulded preform. The mould must be kept warm, and injection temperatures high enough to eliminate any tendency for poor welds. The preform mould must be kept hot, but the bottle mould cold to solidify the bottle as soon as the molten polythene touches the surface of the mould.

If thin spots occur in the wall, the temperature of the preform is too high when the air is admitted to it. Surface roughness on the bottom of the bottle indicates that the material at the nozzle of the injection moulding machine is cooling too much between cycles.

(Another question next week)

'Vibratory Feeder — dining car attendant on British Railways'



Motor car built for Edward VII by Gardner Serpollet Co. 1901.

Even in its own time this car was something of a curiosity.
Then came mass-production, higher living standards and *Advertising*.
In the London area now, one in three homes has a car:
the following table shows the breakdown by class.*

CAR OWNERSHIP	Total	Social Class			
		AB	C	D	D2E
Base of % — No. of Informants	2088	276	558	785	469
Percentage who had a motor car	34%	70%	43%	26%	17%

Today, it's television advertising that creates and consolidates markets:
television with its enormous impact, massive coverage and compelling powers
of *demonstration*. As an advertiser on Associated-Rediffusion,
London's weekday television, you have all the advantages;
plus access to over 2,600,000 homes in the most prosperous,
concentrated area of Britain. A streamlined commodity deserves the streamlined
promotional facilities that Associated-Rediffusion can offer.

* These figures are quoted from the London Viewership Survey No. 3,
commissioned by Associated-Rediffusion.
Eric Laman (Telephone: HOLborn 7888) will be pleased
to give you more details of your potential London market.

LONDON

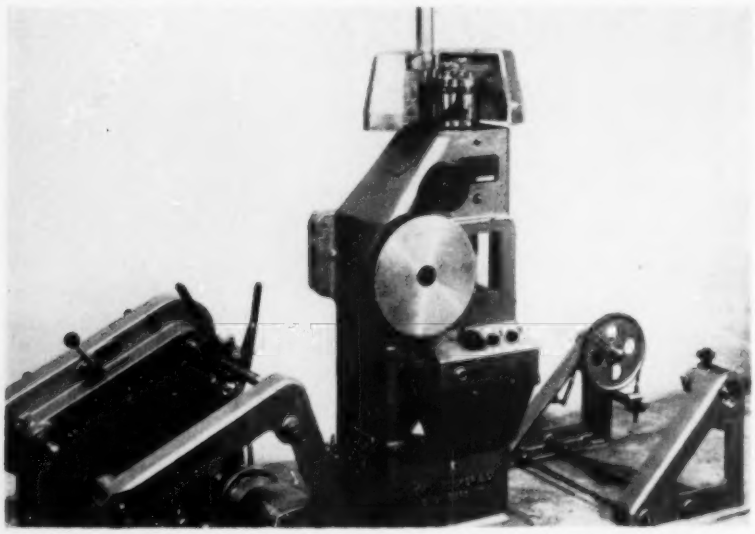
ASSOCIATED-REDIFFUSION

London's Television, Monday to Friday

Television House, Kingsway, London, W.C.2. Tel: HOLborn 7888
also Norfolk House, Smallbrook, Ringway, Birmingham 5. Tel: Midland 9151/2
and Peter House, Oxford Street, Manchester 1. Tel: Central 9867/8

Cable Identification Marker

A NEW machine for multi-colour spiral marking of plastic-coated cables for identification purposes has recently been designed and produced by John Docker and Co. (Engineers) Ltd., Feltham, Middlesex, and can apply two colours simultaneously. Designed for maximum efficiency and ease of handling, these machines can be arranged in batteries and it is possible for one operator to maintain and control six machines.



The spiral marking machine showing the heat-controlled drying chamber, feed stand and take-off unit. The hinged control panel giving easy access to interior is also visible

Each unit is completely independent and self-contained and has an electrically heated, thermostatically controlled drying chamber. All the mechanical, electrical and pneumatic equipment is readily accessible through a hinged control panel on the machine front. The marking heads are conveniently positioned for the operator and the strip applicators and ink containers can be speedily replaced when a change of colour or ink is needed.

Blue Peter Retreads Ltd.

The Northern office of Blue Peter Retreads Ltd. is moving to 5, Clarendon Road, Leeds, 2 on January 23.

NATION OF BOAT OWNERS Continued from page 58

their most important man-made fibres and also on view is another man-made fibre of special interest to the boat world—Courlene, used for ropes, twine, fishing nets and deck chairs.

The stand of Tufnol Ltd. shows many of the marine fittings which have been made from their laminated material. Half the weight of aluminium and resistant to corrosion, Tufnol can withstand rough usage and also has applications arising from its good electrical and thermal insulating properties.

The Dunlop Rubber Co. Ltd. are showing an extensive range of diverse products for marine use made by various divisions of the company. The main feature is their range of inflatable rafts and ancillary equipment and other items include rubber hoses, footwear, decking materials, underwater swimsuits, flexible containers, trailer tyres and water-lubricated rubber bearings.

For the yachtsman who has everything else but a sense of direction there is even a new piece of radar equipment, claimed to be the first small radar manufactured in this country. Consisting of three units, an aerial scanner, the wheelhouse display unit and the power unit, this is made by the British Ferrograph Recorder Co. Ltd.

Fibre Census Published

Part 76 of the Report on the Census of Production for 1958 — on the production of man-made fibres — has been published by H.M. Stationery Office.

1961 HD Polythene Record for US Cars

America's automobile industry will use a record quantity of high density polythene in its 1961 models.

This is predicted in a study just completed by Phillips Chemical Co. Phillips estimates that as much as 6m. lb. of HD polythene will be used in a wide variety of applications by the four major US car manufacturers: an increase of 4.5m. lb. over the 1960 figure.

The applications will range from interior trim items to heater ducts and miscellaneous functional parts on cars made by American Motors, Chrysler, Ford and General Motors. During 1960 the principal car application of HD polythene was the seat side shield in the Ford model.

The study suggests a figure of 14lb. of HD polythene per car may be achieved in future car models. This would mean a consumption of 85m. lb. of resin a year.

Cabot Executive Changes

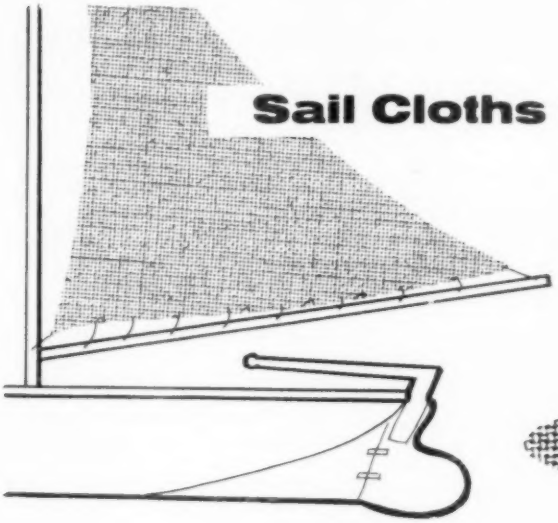
Cabot Carbon Ltd. has made two executive changes in its sales organization. I. R. B. Belsham, who for the past four years has been senior sales representative, has now been appointed assistant to the sales director. Before he joined Cabot, Mr Belsham, who served in the Royal Air Force during World War II, held appointments with Esso Petroleum, United Africa Co. Ltd. and R. H. Cole Ltd.

Mr Belsham will be succeeded by D. J. Christopher who joined Cabot from AEI Ltd. where, as sales engineer, he was mainly concerned with the market development of high duty thermoplastic products for specialized industrial applications.

I. BELSHAM D. CHRISTOPHER

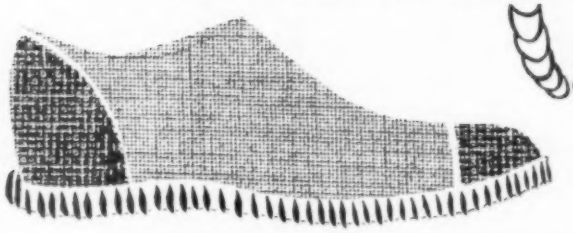
International Works Management

The Institution of Works Managers will celebrate its 30th anniversary with a conference at the Linden Hall Hydro, Bournemouth, April 21-23 1961, to discuss international aspects of works management.



Sail Cloths

Protective Clothing



Boot & Shoe Materials

Tyre Foundations **Tarpaulin Canvas & Sail Cloths** **Liner & Wrapper Cloths** **Filter Cloths** **Transmission & Conveyor Belting Ducks** **Hose Fabrics** **Boot & Shoe Materials** **Protective Clothing** **Fabrics for Rubberising Plasticising and Laminating Purposes** **Printers' Blanket Wigans**

Hay & Robertson

Whatever your fabric requirements or problems consult Hay & Robertson at

St. Margaret's Works, Dunfermline
Telephone: Dunfermline 1
Telegrams: 'HAY' Dunfermline
London Office: 74 Cheapside, E.C.2. Tel: CITY 5901

Rubber Statistics

WORLD POSITION IN OCTOBER

ADVANCE information on the world rubber situation during October 1960 has been given by the Secretariat of the International Rubber Study Group. The figures are in long tons.

NATURAL RUBBER

	October	January/October
Production ..	170,000	1,617,500
Deliveries from stockpiles[1] ..	8,000	138,500
Consumption ..	162,500[2]	1,670,000[3]

STOCKS END PERIOD

		Change since January 1, 1960
In producing areas	290,000	+ 32,500
In consuming areas	227,500	+ 30,000
Afloat	200,000	- 30,000
	717,500	+ 32,500

[1] Deliveries from the Government stockpiles of the US and UK.

[2] Including estimated imports into the Soviet Union of 18,750 long tons and into China of 1,000 long tons.

[3] Including estimated imports into the Soviet Union of 110,500 long tons and into China of 122,750 long tons.

SYNTHETIC RUBBER

	October	January/October
Production ..	152,500	1,592,500
Consumption ..	152,500	1,480,000

		Change since January 1, 1960
STOCKS END PERIOD	355,000	+ 45,000

Indonesia

Reported exports of rubber from Indonesia during October 1960 amounted to 50,153 long tons of which 14,641 long tons were of estate origin. Total exports during the period January/October 1960 amounted to 448,273 long tons.

Indonesia's exports of natural rubber in September have been revised to 51,550 long tons from the figure of 49,050 long tons given in earlier reports.

Canada

The Dominion Bureau of Statistics reports that consumption of natural, synthetic and reclaimed rubber in October 1960 totalled 8,386 long tons, compared to 10,125 long tons in the corresponding 1959 month. This brought total consumption in the January-October period to 89,318 long tons, a decrease of 9.7% from the 1959 figure of 98,875 long tons.

Consumption of all types of rubber was smaller in the month and in the January-October period than consumption in the corresponding 1959 periods.

Nigeria

Rubber exports for August 1960 totalled 2,116 tons. This total included exports to West Germany of 845 tons, the UK of 777 tons, to Czechoslovakia 56 tons, to the Netherlands of 21 tons, to Belgium-Luxembourg of 10 tons, and to USA of 10 tons. Crepe exports amounted to 2,214 tons, of which 1,039 tons went to USA and 780 tons to the UK.

H. J. Billing, sales director of Metalastik, Leicester, has been appointed a director of John Bull Rubber Co.

P. B. Cow and Co. Ltd.

Following the expansion of P. B. Cow and Co. Ltd. at Slough, various new subsidiaries have been formed and others renamed (*RJIP* Jan. 7, 4).

The parent company will become a holding company whose assets will consist of the capital of the subsidiaries.

A list of the company's subsidiaries is given below:

P. B. Cow (Li-Lo) Ltd., Liverpool Road, Trading Estate, Slough—distribution of all P. B. Cow Group consumer products including those previously supplied by P. B. Cow and Co. Ltd., London Moulders (Plastics) Ltd., and Acme Stampings Ltd.

P. B. Cow (Industrials) Ltd., Streatham Common, London, S.W.16—industrial rubber mouldings, extrusions and fabrications.

The Hertfordshire Rubber Co. Ltd., Letchworth, Herts.—industrial rubber mouldings, hoses and extrusions.

Peradin Rubber Co. Ltd., Freshford, Bath, Somerset—rubber/metal bonding and general rubber goods.

Sorbo Ltd., Woking, Surrey—mouldings and extrusions in solid and sponge rubber, 'Sorboprene' plastic foam.

P. B. Cow (Special Products) Ltd. St. Helen's Works, Edinburgh Avenue, Trading Estate, Slough—tank linings, flexible containers, expansion jointings, specialized rubber products.

P. B. Cow (Proofings) Ltd., (temporary), Streatham Common, London, S.W.16—industrial proofing and printers blanket.

P. B. Cow (Plastics) Ltd., Falmouth Road, Trading Estate, Slough—plastic compounds, extrusions, HF welding.

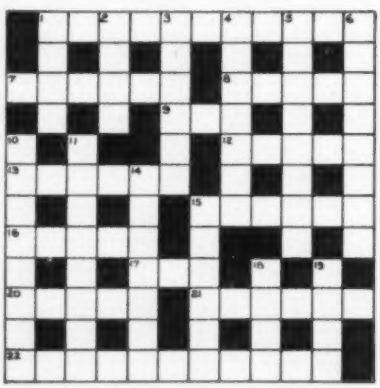
London Moulders (Plastics) Ltd., Buckingham Avenue, Trading Estate, Slough—compression and injection mouldings.

Acme Stampings Ltd., Churnet Street, Collyhurst, Manchester, 9—metal stampings.

P. B. Cow (Transport) Ltd., Liverpool Road, Trading Estate, Slough—group transport.

Leggett Rubber Industries Pty., Ltd. (an associated company), Doonside Street, Richmond, E.1, Victoria, Australia—general rubber goods.

RJIP CROSSWORD



CROSSWORD No. 75

CLUES ACROSS

1. British Railways ache by the sound of it. A number in with gin again makes for good stopping (5, 6).
7. Back the car in gear but drop the organ for speeding (6).
8. He comes from the 'kingdom' in Scotland to play in the band (5).
9. I will shortly be unwell (3).
12. A stone but silver to start with (5).
13. Uncle, a mix up so unloosen your shoes (6).
15. Drastic always has a point at either end (6).
16. A seasonal song (5).
17. A shady place (3).
20. Untie again and join up (5).
21. This insect has another insect first (6).
22. Payne and Scott on this design with rubber (11).

CLUES DOWN

1. Behead but he leaves a part of a tyre (4).
2. Not alkaline (4).
3. The beginning of 22 across (6).
4. 'Blow up' the tyre (7).
5. Spectroscopy used in polymer analysis (8).
6. Percy Thrower is a good example (8).
10. This may cause an escape but is true again finally (8).
11. Going from one to another (8).
14. A green lass (7).
15. Latex is not unless ammonia is added (6).
18. Double it for a disease (4).
19. It can be waved if fluorine will drop behind (4).

(Solution appears on page 73)

PATENT SPECIFICATIONS

The following information is prepared from published Patent Specifications by permission of the Controller of H.M. Stationery Office. The full Specifications can be obtained from the Patent Office, 25 Southampton Buildings, W.C.2, at 3s. 6d. per copy (including postage).

PVC/SBR Blends

No. 853,804. Bataafsche Petroleum Maatschappij. Application and Filed, March 25 1958. Application in Netherlands, March 27 1957. Published November 8 1960.

A considerable increase in the impact strength of articles formed from PVC substantially free from plasticizers while preserving the rigidity and hardness may be effected by the addition of rubbery substances. The tensile strength and heat distortion of PVC are not reduced to any harmful extent. This invention relates to compositions comprising PVC to which has been added 3-25 parts of a copolymer of butadiene and styrene containing less than 35% of bound styrene. The rubbery additive may be added to the system at any time — if desired, during its preparation — for instance immediately after the polymerization or immediately before the manufacture of the finished article.

PVC Coating for Foams

No. 853,825. Réne Droessaert. Application and Filed, November 14 1956. Application in France, November 18 1955. Published, November 9 1960.

A process is described for applying a coating of PVC to cellular materials which makes use of a two-coating system. The undercoating is produced from a solution of a copolymer of vinyl acetate and vinyl chloride and also containing maleic acid, titanium dioxides and methyl isobutyl ketone. The top coating is produced from an organosol with a base of PVC and one or more plasticizers, pigments, stabilizers and dispersion vehicles. The coating is submitted to gelation at 150 to 160°C.

Curing Rubber Latex

No. 853,926. Dunlop Rubber Co Ltd. Filed, May 3 1957. Application, May 15 1956. Published, November 9 1960.

A method is described for the curing of rubber latex without the use of heat, which yields articles having a greater strength than that of articles obtained by prior methods. The rubber latex is cured in the form of an aqueous dispersion by subjecting it to high energy radiation. The irradiated latex can then be formed into shaped articles by the known methods and allowed to dry. It is quite stable and can be used for the production of cured articles without the addition of sulphur or any other curing or vulcanizing agents. The high energy radiation can be any form of radiation having an energy greater than about 0.1 mega electron volts and this includes X-rays, gamma rays, accelerated electrons from linear accelerators or similar machines and beta rays, alpha rays, accelerated protons and deutrons, neutrons produced in atomic piles or other sources.

Blow Moulding Polycarbonates

No. 854,108. Farbenfabriken Bayer. Application and Filed, May 3 1957. Application in Germany, May 17 1956. Published, November 16 1960.

Blown articles of high molecular weight thermoplastic polycarbonates are distinctly superior in all properties to blown articles hitherto used in practice. Bottles are produced in a screw press at a temperature of 270 to 300°C. at a rate of 4 per minute. Blowing is achieved with nitrogen at 4 atmospheres excess pressure.

Export Opportunity

Chemical Plant for Canada

G. E. Flemming, President of Guardian Chemical and Equipment Co. Ltd., Montreal, will be in England from January 14-24 1961, and will explore the possibility of acquiring representation in Canada for his company. He is interested in chemical plant equipment, chemicals and plastics, and particularly interested in getting in touch with manufacturers of polyurethane and plastic foam. Manufacturers interested should write to G. E. Flemming, c/o Room 736, Export Services Branch, Lacon House, Theobalds Road, London, W.C.1, quoting reference ESB/1164/61.

H. C. Pitcher has been appointed field sales manager of Andersons Rubber Co. Ltd., of Bristol.

BOOK REVIEW

SELL'S BRITISH AVIATION — 1960. (Published annually by Business Dictionaries Ltd. Size 8in. x 10in. 221 pages.)

This is the 13th year of publication of this annual directory which is a complete guide to the British aviation industry, arranged for easy reference alphabetically and under classified trades.

The first section contains the names and addresses of all the principal firms in British aviation. The second section is a classified trade guide to constructors of aircraft and aero engines; manufacturers and suppliers of parts, accessories and other materials; aircraft dealers; airlines and independent air transport companies; and other aviation services. This is followed by a trade names and marks' section, details of aviation associations and a section giving brief particulars of British civil aircraft under construction.

The final section is on international aviation, and although this is not claimed to be a complete guide it is a useful source of reference to overseas airlines, aircraft constructors and dealers.

∴ Copies may be ordered through the Books Department, RUBBER JOURNAL AND INTERNATIONAL PLASTICS, Maclaren House, 131 Great Suffolk Street, London, S.E.1.

Laboratory Apparatus Exhibition

The second national Laboratory Apparatus and Materials Exhibition will be held in the Royal Horticultural Society's New Hall, Westminster, from June 19-22 1961.

Awards for 25 years' service with Durham Chemicals Ltd. have been made to T. A. Mowbray and W. McInnes by the chairman, A. E. Beadnell.

To celebrate the millionth Morris Minor (seen here leaving the production line at Cowley) the British Motor Corporation has produced 350 'special' Minor 1000s. All interior trim of these cars is finished in vanilla-coloured 'Vynide'— I.C.I.'s pvc-coated fabric

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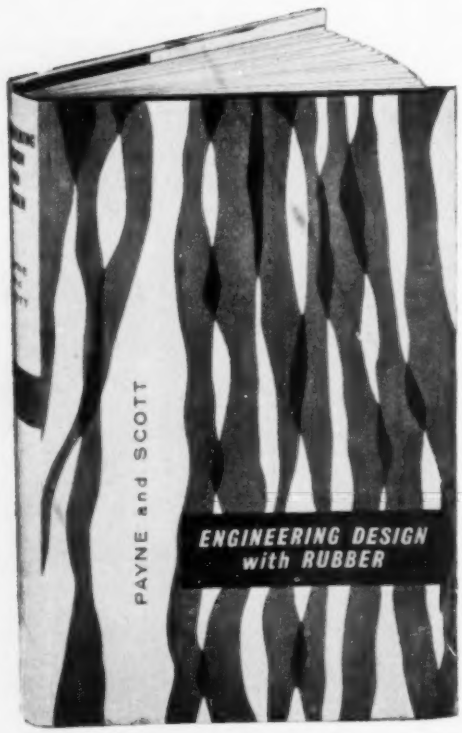

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Rubber Markets

LONDON

Prices gradually declined in sympathy with Eastern advices. The lower levels stimulated short covering. This caused minor rallies which, however, were short-lived, as the market lacked support. A small Continental enquiry and an Eastern European order relieved the general dullness, but factory interest was negligible, apart from routine business.

Latest prices are as follows:

No. 1 RSS Spot: 25⅝d.-25½d.

Settlement House:

February 25½d.-25⅝d.

March 25½d.-25⅝d.

April/June 25½d.-25⅝d.

July/September 25⅝d.-25½d.

October/December 25⅝d.-25½d.

January/March (1962) 25⅝d.-25½d.

No. 1 RSS cif basis ports:

January 25½d.-25⅝d.

February 25⅝d.-25⅝d.

March 25½d.-25½d.

Godown:

January 85⅞ Straits cents nominal.

LATEX

Centrifuged 60% latex per gallon in drums, seller, January, 14s. 3d., cif European ports. Spot, seller, 14s. 10d. Bulk, seller, d.w. 14s. 3d. nominal. Creamed, seller, 14s. nominal, January. Normal, seller, January, 12s. 4d.

NEW YORK

The New York rubber market ruled as under on January 9:

DEALERS' PRICES

US cents per lb. ex-dock

	Jan. 9	Previous
No. 1 RSS, Jan.	29⅛b–29¼a	29⅛b–29¼a
Feb.	29⅛b–29¼a	29⅜b–29⅝a
No. 2 RSS, Jan.	28⅞b–29¼a	29b –29¼a
Feb.	29b –29¼a	29⅛b–29⅜a
No. 3 RSS, Jan.	28⅞b–29a	28⅞b–29⅛a
Feb.	28⅞b–29⅛a	29b –29⅛a
No. 1 RSS, Spot	29⅛n	29⅛n
No. 3 amber blanket crepe, January ..	25⅜n	25⅛n

FUTURES—REX CONTRACT

	Jan. 9	Prev. Close
Jan. ..	29.45t	29.35b–29.60a
Mar. ..	29.40b–29.50a	29.60t
May ..	29.35b–29.45a	29.50b–29.60a
July ..	29.30b–29.45a	29.50b–29.60a
Sept. ..	29.30b–29.45a	29.50b–29.60a
Nov. ..	29.25b–29.40a	29.45b–29.60a
Jan. ..	29.25b–29.40a	29.40b–29.60a

Sales 61. Tone: Steady.

Futures were softer today, January 9, on scattered selling in moderate to fair dealings. Traders said lower foreign markets encouraged selling here. Physical rubber was quiet and slightly priced. In late dealings, futures were steady. Slight sales in physical rubber were reported. The undertone was steady. Flat bark was steady for the day. The other grades were a shade lower in price.

AMSTERDAM

The Amsterdam rubber market ruled as under on January 9:

	Guilders per kilo	
No. 1 RMA	Jan. 9	Previous
January	2.48	2.50
February	2.48	2.50
March	2.48	2.50
Jan./March	2.48	2.50
April	2.48	2.50
May	2.48	2.50

Sales: Nil. Tone: Dull.

BANGKOK

No. 1 RSS

The price of No. 1 RSS at Bangkok on January 9 was 27.25 (27.56) US cents per lb.

SINGAPORE

The market did not respond to improved overseas advices and reacted sluggishly throughout the morning of January 9. Prices eased on liquidation of January No. 1 RSS. Demand for lower sheets was less noticeable and little business was done. Factories were quiet. In the afternoon, quiet conditions prevailed in a very thin market. Interest in lower sheet was sporadic.

	Malayan cents per lb., fob Malayan ports to open ports	
	Jan. 9	Prev. Close
No. 1 RSS, Jan. ..	85⅞–86	86⅛–87⅛
Feb. ..	86⅛–86⅜	87⅛–87⅜
No. 2 RSS, Jan. ..	85 –85⅛	86⅛–86⅜
No. 3 RSS, Jan. ..	83⅛–84	84⅛–85⅜
No. 4 RSS, Jan. ..	80 –81	81⅛–82⅛
No. 5 RSS, Jan. ..	71⅜–72⅛	73⅛–74⅛
No. 1 RSS, Spot ..	85⅞–85⅞	86⅛–87
No. 3 blanket thick remilled crepe, Jan.	70⅛–71	71 –72
No. 1 fine pale crepe, January	90⅛–91⅛	90⅛–91⅛
2x thin brown crepe, January	69⅛–70⅛	70⅛–71⅛

Tone: Quiet.

The Industries Syndicate quote latex, native produce, 60% centrifugal, packed in rectangular drums, at 169.4d. per gallon.

DJAKARTA

Following the decline of rubber prices on the Singapore market, rubber prices on January 9 were showing some minor fluctuations. There were few buyers for sheet Nos. 1 and 2. The close was quiet.

	Rupiahs per kilo	
	Jan. 9	Previous
Spot No. 1 priok ..	31.25b	31.25b
Spot No. 2 priok ..	30.25b	30.25b
Spot No. 3 priok ..	28.75b	28.75b
No. 1 fine pale crepe, spot	30.50b	30.50b

Tone: Quiet.

CEYLON

No. 1 RSS

The price of No. 1 RSS at Colombo on January 9 was 98 (97) Ceylon cents per lb.

COMPANIES in the NEWS

Marley Tile Overseas

The majority of operations of the Marley Tile (Holding) group are within the UK, but because the possibilities of export trade are limited, it has been the policy to establish plants overseas to obtain a greater share of those markets, says O. A. Aisher, chairman, in his annual report.

He adds that interests have been extended to Canada and Australia. The Canadian interest was acquired through the purchase of all the capital of McMahon and Co., of Winnipeg, and in Australia through acquiring 70% of the capital of Reliance Industries Australia. The group net profit of £826,807 for 1959-60 compares with £753,843. Adjusting for the one-for-three scrip issue, the 15% dividend compares with the equivalent of 9⅜%.

The meeting will be held at Sevenoaks on January 27.

Houdry's Excellent Year

Houdry Process Corporation of Philadelphia, USA has announced that 1960 was one of its best years since the catalytic cracking process was introduced by the company more than 30 years ago.

Reflection of this success is found in the 50-cent regular annual dividend and 50-cent extra dividend declared in December 1960, and the announcement of estimated consolidated earnings for the 1960 fiscal year of $2.90 per share against $2.45 for the previous year.

One of the contributors to Houdry's 1960 success was Catalytic Construction Company of Philadelphia, a wholly-owned subsidiary. Catalytic is an engineering construction firm operating in the petrochemical, atomic energy and allied fields. Licensing activities during the year found Houdry dehydrogenation units in operation in Japan and Italy, Houdriforming and desulphurization installations in Japan, and a Houdriflow unit in Thailand, down for completion by late 1961.

Katalysatorenwerke Houdry - Hüls GmbH, located in Marl, West Germany, was created late in 1960 as a jointly owned company of Houdry and Chemische Werke Hüls, the fourth largest chemical concern in Germany. The new company will produce and sell catalysts lines of the two parent firms to the rapidly growing Western European market.

2,804 Acres for Sale

A 2,804 acres estate run by Sungei Tiram Rubber Estate is up for sale. The directors say that if a bid is received 'which is acceptable,' shareholders 'will be approached in due course.'

The sale is by tender, and the closing date is February 6.

Industry INTELLIGENCE

Technical Data

Texseal Paint

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The chemical and ozone resistance of the paint are outstanding and an important application is for the protection of chemical plant and structural steelwork, particularly in marine installations. The flame resistance is also good and the material is suitable for continuous use at temperatures up to 250°F.

Pigmented grades exhibit good colour retention, and adhesion to a variety of substrates including concrete, steel, fibreboard, wood and rubber is satisfactory. The paint, which is a two-part system, can be applied by any of the normal methods including brushing, spraying and dip coating.

A technical bulletin describing the product, its applications and properties is available from Vicsteels Ltd.

Vinamul R2912

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Known as Vinamul R2912, this is a fully saturated resin and coatings based on it do not suffer from the effects of ageing generally associated with unsaturated butadiene copolymer latices. It is used in partial replacement of starch, casein and other natural binders in both on-machine and off-machine coating. The controlled particle size of the emulsion ensures that there are no variations in pigment binding power, coating compositions have low viscosities at high solids content, excellent chemical stability and stability to repeated freezing and thawing. Systems containing R2912 have outstanding mechanical stability, can be used under conditions of high shear as in mixing, pumping and coating operations, and thus have several advantages over other synthetic resin binders.

Robac DFTU Accelerator

An alternative accelerator to Robac 22 has been evolved by Robinson Brothers Ltd., Ryders Green, West Bromwich. This is a substituted thiourea designated Robac DFTU and is specially blended to make it easily dispersible in Neoprene.

The advantage of the new product (which is only available in evaluation quantities) is that scorch times are greater, thus imparting improved processing safety. The physical properties obtained are comparable with those obtainable with Robac 22, but this gives a low initial Mooney scorch time which remains reasonably constant on storage while DFTU has a much higher initial scorch time, which decreases on storage in Neoprene WRT and W.

Uncured stocks containing DFTU discolour if left exposed to light but this does not occur if stocks are cured immediately after compounding. This material is not recommended for G grades of Neoprene as it gives no improvement in physical properties.

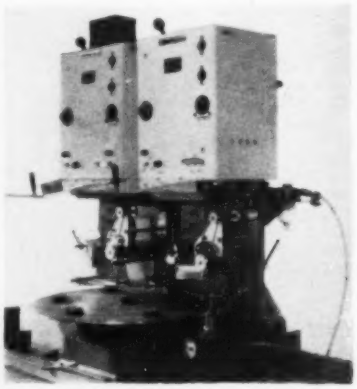
Details of the results of laboratory tests on vulcanization of Neoprene W, WB and WRT with Robac DFTU are given in a technical bulletin recently issued by Robinson Brothers Ltd.

Machines, Materials and Equipment

Hot Press Foiling

Two colour foiling has always presented considerable difficulty because different colours require different release temperatures and the pressure and dwell time vary with the total die area.

Universal hot press marking machines produced by Phillips Bros.



and Ellis Ltd., Charterhouse Buildings, E.C.1, form the basis for a new fully automatic two colour machine. Each unit is independently controlled from the point of view of temperature, pressure and dwell-time, and whatever the combination of colours or marking area, good results are obtained in the time normally taken to obtain one colour.

The rotary feed table action further increases output and the machine compensates automatically for variations in overall thickness of the article which is particularly important when marking injection mouldings. Furthermore, the long head stroke makes for easy loading and jigging and allows the operator a clear view of the article during the process.

Publications

Duraglas for Boats

To illustrate the vast number of applications for glass fibre reinforced plastics materials in the shipbuilding industry, Turner Brothers Asbestos Co. Ltd., have just published a profusely illustrated booklet entitled Duraglas for Boatbuilding and Marine Equipment.

Glass fibre is becoming a major constructional material in the shipbuilding industry and has been used in ever-increasing quantities over the last few years. Latest use is for the fabrication of lifeboat hulls. The booklet gives general information on the properties of glass fibre, details of the single mould wet lay-up technique and brief reference is also made to the depositor method of fabrication.

Also included is a section giving suggested methods of construction of composite laminates using woven roving/mat/woven roving sandwich structures which have improved physical properties. A list of resin, filler, release agent and filler suppliers completes the information given in this comprehensive guide.

Conveyor Belt Repair

The Stenor Weldbelt equipment for the repair and splicing of rubber and PVC conveyor belts, transmission belts, cables, airlines and rubber hoses, tarpaulins and canvas sheeting was introduced just over a year ago (*RJIP* Nov. 21 1959, 659).

The Industrial Division of Stenor Ltd., manufacturers of this equipment, have now prepared a 15-page illustrated handbook on the uses of the equipment which was introduced to allow rubber belt repairs to be carried out by one man with only the minimum of instruction. To enable repairs to PVC belting to be carried out the kits can now be supplied containing a special PVC repair paste, PVC impregnated duck pieces and PVC impregnated duck sheets.

The belt splicing technique has been carefully evolved and can, it is claimed, be used without lowering the strength of the belt, and with the minimum of interruption to plant.

The instruction book and demonstrations of the equipment can be obtained from Stenor Ltd., Kew Foot Road, Richmond.

Future Events

Institution of the Rubber Industry

Humberside Section.—Jan. 19 at the Yarborough Hotel, New Holland, at 8 p.m. 'Some Recent Developments in Rubber and Plastics Machinery,' by K. M. Wilson, A.M.C.T., A.M.I.Mech.E. (David Bridge and Co. Ltd.).

Scottish Section. — Jan. 17 at The Scottish Building Centre, 425-427 Sauchiehall Street, Glasgow, C.2. Film Evening.

Plastics Institute

London and District Section.—Jan. 17 at the Wellcome Building, Euston Road, London, N.W.1, at 6.30 p.m. 'Newer Ways of Making Polymers—a Guide for the Non-Chemist,' by M. Kaufman, B.Sc., F.R.I.C., A.P.I. (National College of Rubber Technology).

Midlands Section. — Jan. 20 at the James Watt Memorial Institute, Great Charles Street, Birmingham 3, at 6.30 p.m. 'Automatic Moulding,' by E. C. Gilbert (Joseph Lucas Ltd.). Jan. 18 at the Victoria Hotel, Wolverhampton, at 7.30 p.m. 'Design for Polyester Mouldings.'

North-Eastern Section.—Jan. 18 at Stockton-on-Tees, 'Plastics in Building,' by V. H. Wentworth, B.Sc., A.R.I.C., A.R.A.E.S., F.I.R.I. (Monsanto Chemicals Ltd).

North-Western Section.—Jan. 20 at the Textile Institute, 10 Blackfriars Street, Manchester 3, at 6.45 p.m. 'Trends in the Plastics Industry — A General Survey,' by C. W. Welch (*Plastics*).

British Standards

Conveyor Belting in Coal Mines

Based on National Coal Board specifications, BS 3289:1960 is a welcome addition to the list of British Standards which help to make working conditions safer for coal miners.

It specifies requirements for conveyor belting for underground use in coal mines. It may also be applicable to other underground and surface installations where similar operational hazards exist.

The publication lays down requirements for tensile properties, adhesion of plies, electrical and fire resistance, together with methods of test. It has not been found possible to specify limits for all properties but additions will be made when suitable tests are available.

Copies of this standard may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London, W.1, price 5s.

Harrisons and Crosfield

J. F. E. Gilchrist has been appointed vice-chairman of Harrisons and Crosfield.

J. B. Leask is acting as chairman of the company during the Eastern visit of Sir Leonard Paton.

NEW COMPANIES

Plastics (West Heath) Ltd. (677,179).—December 7. Capital: £1,000 in £1 shares. To carry on the business of manufacturers of and dealers in plastic materials, etc. The directors are: Leslie Humphries, 43 Barnsdale Crescent, Northfield, Birmingham, 31; Norman W. Humphries, 381 Heathway, Castle Bromwich, Birmingham, 34; Harold J. Gregory, 43 Sandbourne Road, Birmingham, 8. Regd. office: Elms Industrial Estate, Lightning Way, West Heath, Birmingham, 31.

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Durafloat Ltd. (677,384).—December 9. Capital: £20,000 in £1 shares. To develop, manufacture and sell plastic or fibre-glass boats, etc. The first directors are: Derek J. Boyer, Pinewood, Manor Lane, Gerrards Cross; Gerald H. Incledon, Highlands, Woldingham, Richard L. Damerham. Regd. office: 56 Kingsway, W.C.2.

Hygrade Plastics Ltd. (677,390).—December 9. Capital: £5,050 in £1 shares (50 founders and 5,000 ordinary). To acquire the business of manufacturers in plastics carried on by P. H. Barton at Hemel Hempstead, etc. The directors are: Percival H. Barton and Linda A. Barton, both of Chesterton, Blackhorse Lane, Redbourn; Leonard C. Hopkins, 79 Marlowes, Hemel Hempstead. Regd. office: Duxons Turn, Maylands Avenue, Hemel Hempstead.

Inn Signs Ltd. (677,464).—December 9. Capital: £1,000 in £1 shares. To carry on the business of manufacturers of and dealers in plastic materials, etc. The directors are: Jack Boone, Hempton House, Deddington, Oxon; Kenneth J. Foinquinos, 5 Main Street, Osgathorpe, Leicester. Regd. office: 54 Dannett Street, Leicester.

British Electric Cable Testing Organisation. (677,712).—Registered December 14 as a company limited by guarantee without share capital. The original number of members is 50 each being liable for £10 in the event of winding up. The word 'Ltd.' is omitted from the title by licence of the Board of Trade. The income and property of the Organisation whencesoever derived shall be applied solely towards the promotion of its objects. The management is vested in a Council the first members of which are not named. Regd. office: Vernon House, Sicilian Avenue, Bloomsbury Square, W.C.1.

Wemyss Woodhouse Ltd. (677,989).—December 15. Capital: £100 in £1 shares. To carry on the business of manufacturers of and dealers in plastic, fibre glass, modelling and moulding materials, etc. The first directors are to be appointed by the subscribers. Solicitors: Linklaters and Paines, 59/67 Gresham Street, E.C.2.

Deal Mouldings Ltd. (677,809). — December 14. Capital: £1,000 in £1 shares. To carry on the business of manufacturers of and dealers in plastics, modelling and moulding materials, etc. The first directors are to be appointed by the subscribers. Regd. office: 2/3 Norfolk Street, W.C.2.

Tripsbox Ltd. (677,986).—December 15. Capital: £100 in £1 shares. To carry on the business of manufacturers of and dealers in tyres, etc. The subscribers (each with one share) are: Jean Herbert, company director, and Thomas A. Herbert, barrister, both of 156 Strand, W.C.2. The first directors are to be appointed by the subscribers. Secretary: Thomas A. Herbert.

Precision Mouldings (Plastics) Ltd. (674,643).—November 9. Capital: £500 in £1 shares. The directors are: Frederic J. Harries and Robin F. Harries, both of 120 Mercian Way, Cippenham, Bucks. Regd. office: 76 Marylebone High Street, W.1.

M. and R. Plastic Moulds Ltd. (677,832). — December 14. Capital: £1,000 in £1 shares. To carry on the business of manufacturers of moulds in plastic, etc. The directors are: James C. Ratcliffe, Greenfields, Altwood Bailey, Maidenhead; William H. Main, 34 Grenville Close, Burnham, Bucks. Regd. office: Greenfields, Altwood Bailey, Maidenhead.

W. F. and B. W. Rees and Co. Ltd. (677,855).—December 14. Capital: £100 in 1/- shares. To carry on the business of wholesalers and retailers of and dealers in rubber tyres, tubes, rubber, vulcanite and ebonite or plastic compositions; to operate motor transport, etc. The first directors are: Brian W. Rees, William F. Rees and Nora E. Rees, all of 269 Kinson Road, Bournemouth. Secretary: William T. Rees. Regd. office: 271/5 Kinson Road, Bournemouth, Hants.

Cycle Rainwear Ltd. (677,726).—December 14. Capital: £100 in £1 shares. To carry on the business of manufacturers of and dealers in plastic rainwear, to supply plastic rainwear to cyclists, motorists, etc. The first directors are to be appointed by the subscribers. Regd. office: 34 South Molton Street, W.1.

Tanfab Ltd. (674,926).—November 14. Capital: £5,000 in £1 shares. To carry on the business of merchants, shippers, agents, exporters, importers, dealers and manufacturers of and in bindings of all kinds, galloons, braids, tapes, trimmings and ornaments of silk, metal, paper, wood, cardboard, leatherboard, leathercloth and rubber, etc. The first directors are to be appointed by the subscribers. Solicitors: Harry Hoyle and Co., 602/4 Bacup Road, Waterfoot, Rossendale.

Nu-Luxe Foam Products Ltd. (674,921). —November 14. Capital: £100 in £1 shares. To carry on the business of manufacturers of and dealers in foam rubber goods of all kinds, etc. The directors are: George Patterson, 57 Cunningham Drive, Bury; Marks Cohen, 21 Whitehouse Avenue, Manchester, 8. Regd. office: 41 Bury New Road, Manchester, 8.

J. and K. Tyre Recoveries Ltd. (674,843). —November 11. Capital: £2,000 in £1 shares. To carry on the business of tyre merchants and repairers, motor accessory dealers, etc. The first directors are: Jack Stringer and Keith Stringer, both of 12 Thornhill Street, Calverley in Leeds. Regd. office: 83 Town Street, Stanningley, near Leeds.

Solution to RJIP Crossword

ACROSS. — 1, Brake lining. 7, Racing. 8, Fifer. 9, Ill. 12, Agate. 13, Unlace. 15, Severe. 16, Carol. 17, Lea. 20, Unite. 21, Beetle. 22, Engineering.

DOWN. — 1, Bead. 2, Acid. 3, Engine. 4, Inflate. 5, Infrared. 6, Gardener. 10, Puncture. 11, Flirting. 14, Colleen. 15, Stable. 18, Beri. 19, Flag.

(See page 68 this issue)

This 'Flying Fin' high-speed outboard launch has been moulded by Rodway and Taylor Ltd., Icknield Street, Birmingham, in polyester resin and chopped strand glass fibre mat supplied by Glass Yarns and Deeside Fabrics

Industry INTELLIGENCE

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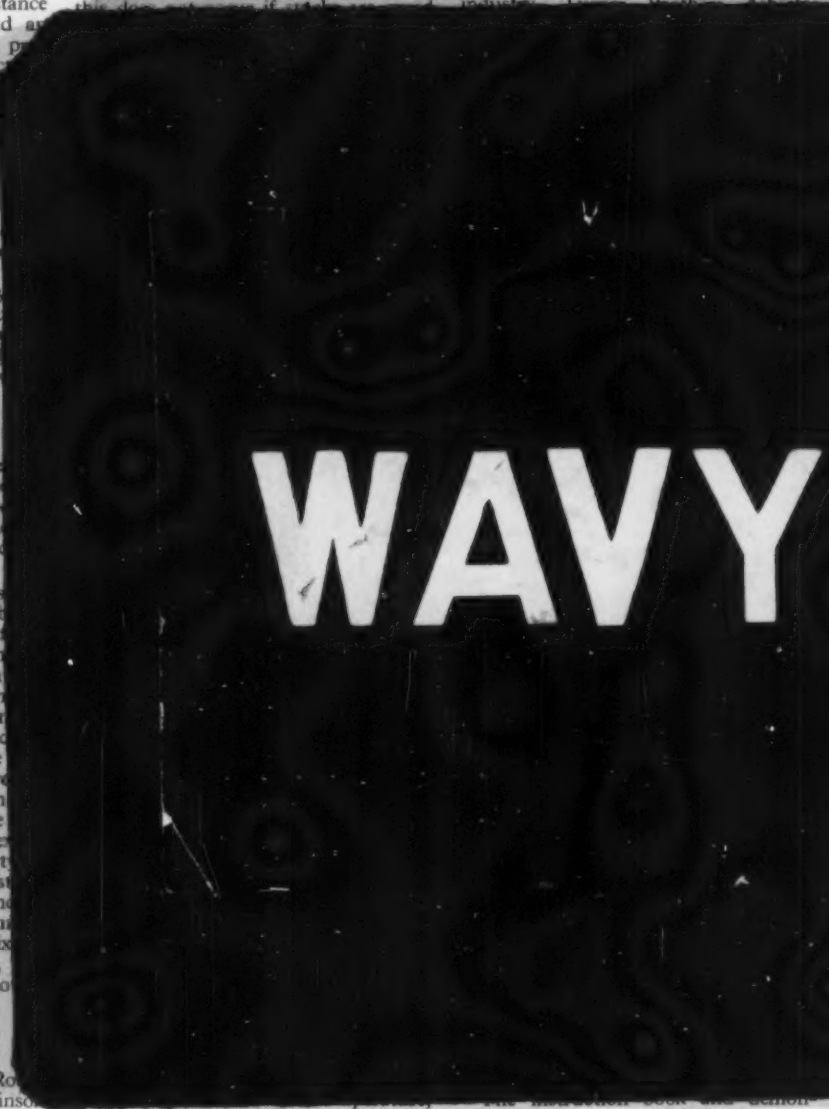

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Ruggles Tyre Service Ltd. (677,372).—December 8. Capital: £500 in £1 shares. The directors are: Frank G. Ruggles, John K. Ruggles, both of 378 Jersey Road, Osterley, Middlesex; Raymond F. Ruggles, 'Corran' One Pin Lane, Farnham Common, Bucks. Regd. office: London Road, Hounslow, Middlesex.

Durafloat Ltd. (677,384).—December 9. Capital: £20,000 in £1 shares. To develop, manufacture and sell plastic or fibre-glass boats, etc. The first directors are: Derek J. Boyer, Pinewood, Manor Lane, Gerrards Cross; Gerald H. Incledon, Highlands, Woldingham, Richard [illegible]

the first members of which are not named. Regd. office: Vernon House, Sicilian Avenue, Bloomsbury Square, W.C.1.

Wemyss Woodhouse Ltd. (677,989).—December 15. Capital: £100 in £1 shares. To carry on the business of manufacturers of and dealers in plastic, fibre glass, modelling and moulding materials, etc. The first directors are to be appointed by the subscribers. Solicitors: Linklaters and Paines, 59/67 Gresham Street, E.C.2.

Deal Mouldings Ltd. (677,899).—December 14. Capital: £1,000 in £1 shares. To carry on the business of manufacturers of and dealers in plastics, modelling and moulding materials, etc. The first directors are to be appointed by the subscribers. Regd. office: 2/3 Norfolk Street, W.C.2.

Tripsbox Ltd. (677,986).—December 15. Capital: £100 in £1 shares. To carry on the business of manufacturers of and dealers in tyres, etc. The subscribers (each with one share) are: Jean Herbert, company director, and Thomas A. Herbert, barrister, both of 156 Strand, W.C.2. The first directors are to be appointed by the subscribers. Secretary: Thomas A. Herbert.

Precision Mouldings (Plastics) Ltd. (674,643).—November 9. Capital: £500 in £1 shares. The directors are: Frederic J. Harries and Robin F. Harries, both of 120 Mercian Way, Cippenham, Bucks. Regd. [illegible] 26 Marylebone High Street, W.1.

[illegible] Plastic Moulds Ltd. (677,832).—[illegible]er 14. Capital: £1,000 in £1 [illegible]o carry on the business of [illegible]ers of moulds in plastic, etc. [illegible]ors are: James C. Ratcliffe, [illegible] Altwood Bailey, Maidenhead; [illegible]. Main, 34 Grenville Close, [illegible] Bucks. Regd. office: Green[illegible]ood Bailey, Maidenhead.

[illegible]nd B. W. Rees and Co. Ltd. [illegible]December 14. Capital: £100 in [illegible] To carry on the business of [illegible] and retailers of and dealers [illegible]tyres, tubes, rubber, vulcanite [illegible]e or plastic compositions; to [illegible]tor transport, etc. The first [illegible]re: Brian W. Rees, William F. [illegible]Nora E. Rees, all of 269 Kinson [illegible]rnemouth. Secretary: William [illegible]Regd. office: 271/5 Kinson Road, [illegible]th, Hants.

[illegible]inwear Ltd. (677,726).—Decem[illegible]Capital: £100 in £1 shares. To [illegible]he business of manufacturers of [illegible] in plastic rainwear, to supply [illegible]wear to cyclists, motorists, etc. [illegible]directors are to be appointed [illegible]ubscribers. Regd. office: 34 [illegible]on Street, W.1.

[illegible] Ltd. (674,926).—November 14. [illegible],000 in £1 shares. To carry on [illegible]ess of merchants, shippers, [illegible]porters, importers, dealers and [illegible]rers of and in bindings of all [illegible]loons, braids, tapes, trimmings [illegible]ents of silk, metal, paper, wood, [illegible] leatherboard, leathercloth and [illegible]. The first directors are to be [illegible] by the subscribers. Solicitors: [illegible]le and Co., 602/4 Bacup Road, [illegible] Rossendale.

[illegible] Foam Products Ltd. (674,921).—[illegible]r 14. Capital: £100 in £1 shares. [illegible]n the business of manufacturers [illegible]lers in foam rubber goods of all [illegible]. The directors are: George [illegible] 57 Cunningham Drive, Bury; [illegible]hen, 21 Whitehouse Avenue, [illegible]r, 8. Regd. office: 41 Bury New [illegible]nchester, 8.

[illegible]. Tyre Recoveries Ltd. (674,843).—[illegible]er 11. Capital: £2,000 in £1 shares. [illegible]n the business of tyre merchants [illegible]rers, motor accessory dealers, [illegible]irst directors are: Jack Stringer [illegible] Stringer, both of 12 Thornhill [illegible]alverley in Leeds. Regd. office: [illegible] Street, Stanningley, near Leeds.

PAGES

and Crosfield.

J. B. Leask is acting as chairman of the company during the Eastern visit of Sir Leonard Paton.

This 'Flying Fin' high-speed outboard launch has been moulded by Rodway and Taylor Ltd., Icknield Street, Birmingham, in polyester resin and chopped strand glass fibre mat supplied by Glass Yarns and Deeside Fabrics

TRADE MARKS

Objections to the registration of any of the undermentioned applications may be lodged with the Comptroller-General of Patents, Designs and Trade Marks at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.2, within one month of the date mentioned. The objections must be stated on Trade Marks Form No. 7, cost £2, obtainable through any money order office. The extracts—from 'The Trade Marks Journal'—given below are reproduced by permission of the Controller of H.M. Stationery Office.

CASCANET (809,402) Nets and netting, all made of plastics and included in Class 22. The British Xylonite Co. Ltd., Highams Park, London, E.4. (Class 22; December 14 1960).

SETRA (805,404) Bed and table covers, and curtains, all made of plastics. Scrubb and Co. Ltd., Wimbledon Factory Estate, Morden Road, Wimbledon, London, S.W.19. (Class 22; December 14 1960).

PLIA-GRIP (807,619) Rubber gloves for games. J. Allen Rubber Co. Ltd., Whitecroft, Lydney, Gloucestershire. (Class 28; December 14 1960).

Increases of Capital

A. S. Cumming and Co. Ltd. (475,645).—Jute and plastic merchants and upholsterers' warehousemen, etc., 248 Scotswood Road, Newcastle upon Tyne, 4. Increased on May 6 1960, by £4,000 in £1 ordinary shares, beyond the registered capital of £6,000.

Ashley Laminates Ltd. (582,999). Plastic manufacturers, Robin Hood Garage, Robin Hood Roundabout, Eppingnew Road, Loughton.—Increased on January 10 1960, by £900 in £1 ordinary shares, beyond the registered capital of £100.

Vitafoam Ltd. (472,253). Manufacturers and dealers in foamed latex products, etc., Don Mill, Don Street, Middleton, Manchester.—Increased on May 18 1960, by £200,000 in 12,550 6% cumulative preference shares of £1 and 187,450 ordinary shares of £1, beyond the registered capital of £100,000.

County Court Judgments

NOTE.—These Judgments which are supplied from the Registry of County Court Judgments, Lord Chancellor's Department, 3 Dean's Yard, London, S.W.1, are not necessarily for debt, and some may have since been satisfied. They may be for damages or otherwise, they may relate to actions bona fide contested between the parties, or they may be against defendants liable in a representative capacity and not personally; but no distinction is made on the register. A judgment does not imply inability to pay. Judgments are not returned to the Registry if satisfied in Court Books within twenty-one days.

LIGHTWEIGHT PLASTICS LTD., R/o No. 2 Factory, Goodwin Road, Edmonton, London, N.9, plastic material manufacturers, Westminster, £34, September 22 1960.

THE AVCO RUBBER AND METAL CO., 7 The Grove, Horsforth, Leeds, Yorks. Doncaster, £44, September 15 1960.

GEORGE R. HANNINGTON (T/A ASKEW TYRE SERVICE), Flat 3, 64 Tavistock Road, W.11, Middlesex. Marylebone, £18, September 15 1960.

J. A. PIDDING (E.R. PLASTICS LTD.), 54 Alsen Road, N.7, Middlesex, Willesden, £24, September 2 1960.

SOUTHERN PLASTICS (PORTSMOUTH) LTD., 30-2 Lower Forbury Road, Portsmouth, Hants. Portsmouth, £21, October 12 1960.

C. TAYLOR, Leeds Tyre Recovery, 21 Waterloo Road, Leeds, 10, Yorks. Wandsworth, £25, September 12 1960.

PARK BATTERY AND TYRE CO. LTD, 24 Peckham Park Road, Peckham, S.E.15, Kent. Willesden, £21, August 23 1960.

KING DEVELOPMENT CO. LTD., Wheatash Road, Addlestone, Surrey, rubber manufacturers. West London, £21, August 15 1960.

PLASTIC UTILITIES, 1a Shepherds Bush Road, London, W.6, general supplies. Winchester, £19, August 26 1960.

PLASTICORK FLOORING CO. LTD., 1/3 Queensthorpe Mews, S.E.26, Surrey. Wandsworth, £45, September 28.

SHIPLEY PLASTICS, Post Office Chambers, Merthyr Tydfil, Glam. Merthyr Tydfil, £26, October 21 1960.

Changes of Name

Transparent Plastic Containers Ltd. (556,480), Imperial Buildings, Watery Lane, Birmingham, 9.—Name changed to E. H. Morgan Ltd. on June 15 1960.

Vulcan Products Ltd. (226,717). Manufacturers and dealers in India rubber etc., 37 Queen Square, W.C.1.—Name changed to Vulcan Products (Slough) Ltd. on June 9 1960.

Odic Plastic Composition Co. Ltd. (56,084), Grosvenor Gardens House, Grosvenor Gardens, S.W.1.—Name changed to International Paints (Anti-foulings and Marine Compositions) Ltd. on May 2 1960.

Saltaire Tyre and Rubber Co. Ltd. (443,148), 2 and 6 Brunswick Street East, Hove, Sussex.—Name changed to R. J. Salt and Co. Ltd. on June 13 1960.

Hilton, Hind and Bourne (Plastics) Ltd. (588,744), 4 Weekday Cross, Nottingham.—Name changed to S. Bourne and Co. (Plastics) Ltd. on June 8 1960.

Terrazzite Ltd. (564,979), 9 South Molton Street, W.1.—Name changed to Plastics and Resins Ltd. on June 10 1960.

R·F·I·P·

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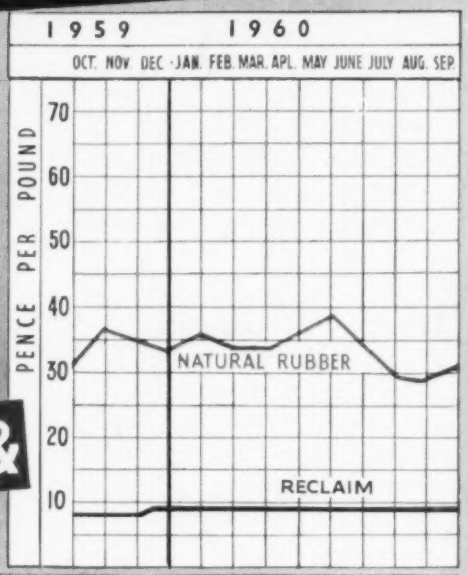

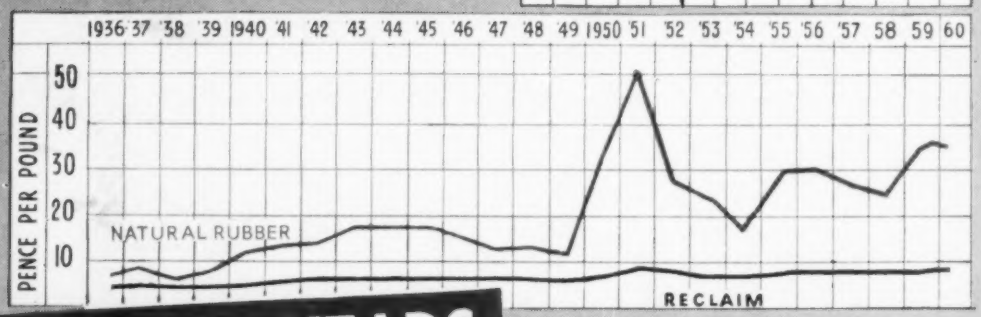

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Printed in Great Britain by F. J. PARSONS, Ltd., London and Hastings, and published by the Proprietors, MACLAREN & SONS, LTD., Maclaren House, 131 Great Suffolk Street, London, S.E.1